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THE R.I.B.A. AND AN EMERGENCY.

WE doubt if the members of the Royal Institute of British Architects realise the future perils which architects are exposed to, or if the leading body of the profession is taking the only steps which, in our view, can be of use to the bulk of its members. Political issues are outside the scope of a professional body unless they touch technical matters, in which case they are fit and proper subjects for discussion. If architects cannot give a lead where the interests of building are concerned, their organisations are in a large measure useless, and we hold that such a lead has not been given on the broad issues of housing and control of building after the war. The Institute has rather followed in the wake of a popular and, we believe, largely ignorant outcry; it has not taken a definite line and stated its own views—if, indeed, it has any! We hold that the amount of housing required cannot be assessed until we know the amount of emigration which will be caused by the effects of the war, until the conditions of peace settle the broad lines which will regulate our industrial position, until we know how Capital and Labour are going to work together in the future, and until the total effects of the war on our population are determined. It would seem that all these considerations have been overlooked by those who have launched an immense housing programme on the country. The fact that this programme is to a great extent endorsed by the authorities need not force us to approve their action, because before that programme can be carried out a new Government must be elected, whose views may differ very materially from those of our present rulers. We do not say that no housing is required, or that proper preparations should not be made beforehand, but it is our emphatic opinion that the proposals which are so strongly advocated are unjustified.

Architects have the strongest possible reason for objecting to any barriers which hamper building, and the present Government has frequently admitted that the Finance Act 1909 must be amended—a step which can be taken even during the war, and which is urgently required, unless we wish to do away with the initiative which has been the means of supplying housing in the past. Should not the Institute urge those in authority to fulfil their promise at once, so that private enterprise may be freed from an intolerable injustice and impediment which has been the means of destroying a sense of the security of land and building as an investment, and has been largely instrumental in creating the shortage of housing complained of? Building by-laws, much as they may need amendment in some respects, are a minor obstacle in the way of building compared to the unfair burden of our present system of rating on building—a burden which, in the opinion of experts, could be better and more equitably adjusted to the great benefit of the community as a whole. We believe that the same amount of energy and thought which has been expended on framing schemes which will be only temporary sops might be more wisely employed in thinking out methods for removing the impediments which stand in the way of all building development, to the detriment of the whole community and the great loss of everyone connected with the great industry of building. It would seem that this interim period would be best spent in clearing away one by one the obstacles which stand between the general public and the provision of its needs, instead of assuming that patchwork and emergency legislation is required. The Institute would surely be well advised to adopt a long and comprehensive view in these matters, and not to identify itself with a popular wave which, when spent, will leave the whole situation as unsatisfactory as it was before.

We have read many accounts of the meetings of enthusiastic advocates of compulsory housing who have no sense of responsibility, and who cannot be said to represent the suffrages of any section of the community, together with other accounts of meetings of those who oppose such schemes, but they are often appeals to prejudice rather than to reason. Can we not more wisely take counsel on the lines of the Irish Convention? We have read columns of matter dealing with Ireland from every point of view, but now pin our hopes on the results of a meeting at which political opponents meet in private to recommend measures which they are united about, rather than to emphasise points of cleavage. The decisions of such a meeting would probably be more convincing than anything we have yet heard, and we do not see why the experiment should not be tried. The true solution of the question of housing will only be effected when the rating of buildings is placed on a new and fairer basis. The authorities travelling along the interesting road of hypothesis both presuppose that an immense measure of housing must be carried out, and assume that the materials for such work can only be obtained if the present war control of building is continued in times of peace; and builders and architects whose work has been almost entirely stopped by the war are asked to acquiesce in the maintenance of a system of control which will extend the lean years of war into the ensuing period of peace. The ordinary individual is also expected to consent to spend his money on what may be commercially important buildings, which have been held up for three and a-half years, subject to the consent of the all-wise and autocratic controller!

For the builder this is serious; for many architects it will mean the entire extinction of their chance of making a living in the profession they have learnt and worked at, unless they succeed in a very questionable attempt to interfere with the rights of others. Most authorities have their professional advisers to whom they look for professional work of a certain class. The London County Council, the Corporations of Manchester, Sheffield, Dundee, and many other large towns, have their official architects and architectural departments, and the housing done in such centres will naturally be done by these architects. Many other towns have surveyors or engineers, some of whom are qualified architects, who carry out a great deal of architectural work, and housing in most cases will be done by them if carried out municipally. The County Council of London has been a pioneer in housing, and both its schools and housing schemes are justly considered to be models of able and well considered work. Architects have been given a small sop of a few thousand pounds to be expended in premiums for type designs, and this very small mess of pottage will, we believe, represent a large bulk of what they will receive if they do not take action to prevent the partial extinction of private building. To enthusiasts it may be sufficient; a few men placed in exceptional positions may not suffer, but for the rank and file it is the shortest way to ruin.

If we believed the case was proved it would be useless to fight, but we believe it rests, on the contrary, on a foundation of sand; and the average architect will certainly ask himself whether membership of a professional body which tamely acquiesces in such a result is a privilege worth paying for—many, it may be added, will be unable to pay for it! We believe if the truth were realised that many who have supported the housing propaganda would be found among its stoutest opponents. Unless we are in error, it is chiefly a plank in the programme of those Socialists who would, by confiscation and oppressive legislation, destroy the value of property which has hitherto been the basis of most of our building development. The interest of the community, of architects, and of builders,

is closely concerned with the maintenance of security, with the abolition of unnecessary restrictions and with the granting of equal justice to all. We should not interfere with official architects whose due is the support of their professional colleagues, but both they and their brothers in private practice are alike interested in the general prosperity of the craft of building, and can join in common action to oppose the establishment of a social bureaucracy which is their common enemy, and is bound to injure our national prosperity in the future unless it is fought and destroyed now.

NOTES.

The New Government Restriction.

We regret to announce that the Government have thought it necessary to introduce a further restriction on building—by the prohibition of building of less value than £500 unless an official permit is obtained. We regret it because we do not think it will help the proper prosecution of the war, and we know it will inflict a grievous hardship on many men over military age, some of whom are only employed now because they can do work which in normal times is undertaken by younger men. In effect they are helping on the war by filling in a gap, and they are earning money for themselves and their dependants instead of being, as they would be in some cases, a charge on public funds. Not the least of the advantages which have arisen out of a great evil is the endeavour which has been made by those whose working days are almost past to help the community and incidentally to help themselves, and this fresh step of the Government is likely to paralyse such laudable instincts without helping in the great cause. In addition, we all know how much the upkeep of buildings depends on doing necessary work when required, and how much is lost if such work is not done. The old adage, "A stitch in time saves nine," exemplifies this even if it is a partial exaggeration. Can the all-wise controller really decide whether it is necessary to make some structural repairs now, or whether they can wait for a year? The moral seems to be "when in doubt appoint a controller," and if any doubt lingers, extend his powers!

The Housing and Town Planning Council's Meetings.

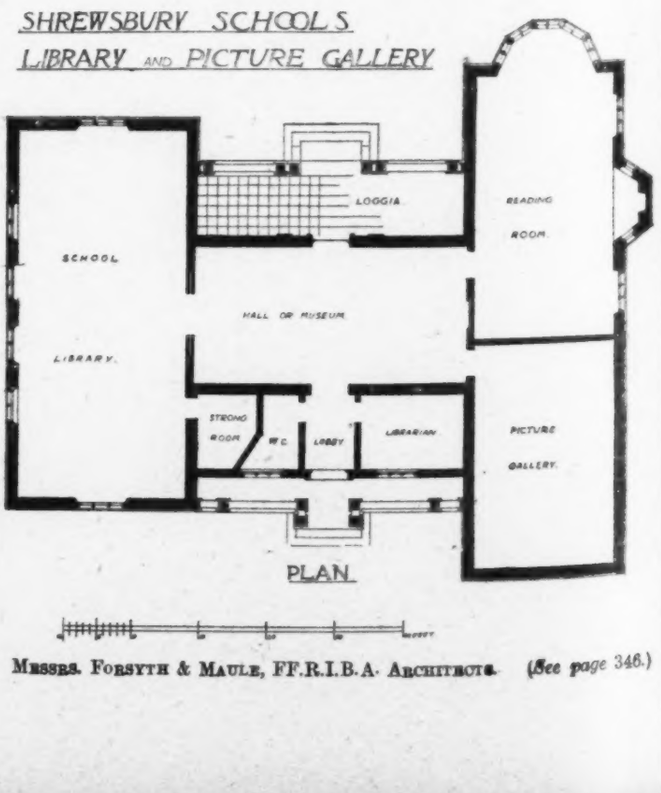
It seems impossible to believe, what is nevertheless true, that the Housing and Town Planning Council have held a meeting at Liverpool to discuss housing, and have actually refused a request of the Liverpool Property Owners' Association, whose secretary wrote to ask for tickets in order that some of their members might attend the meeting! Very little good can arise from steps which are obviously unfair and unjust, and it will be sufficient to say that the long report of the meeting which took place abounded in the usual absurdities which characterize the proceedings of a meeting of hot-headed fanatics, whose ill-judged and violent observations carry no conviction. We have given the proceedings and reports of the National Housing and Town Planning Council as much space as we can spare in our columns, not because we agree with its policy or views, but because we are anxious to be perfectly fair to those we oppose for what appear to us to be sufficient reasons. We do not believe in packing meetings with those whose views are similar; we have no respect for those who are afraid of meeting opposition face to face. If there is any characteristic in which we as a nation have hitherto been able to feel pride it is that of trying to be just even to those we differ from in fundamental points. Such actions as these have served to deepen our conviction that much of the present enthusiasm for housing reform is due to a wish to make political capital out of a movement which is supposed to be inspired by a philanthropic desire to do good. It would be as well to remember that Charity suffereth long and is kind, Charity envieth not; Charity vaunteth not itself, is not puffed up, doth not behave itself unseemly, seeketh not her own, is not easily provoked, thinketh no evil. Probably few of us live up to the scriptural standard, but we think that the self-constituted leaders of a great public movement should set their opponents a better example than they appear to be doing at present.

Reinforced Concrete and Housing.

The most likely form in which reinforced concrete will be used after the war for housing purposes will be in the form of rafters, beams, and joists cast in reinforced materials and made to uniform and standard lengths ready for erection in buildings. All difficulties of joints and connections can be readily dealt with in this surprising material, and timber will probably be so costly for a long period after the war that there will be a disposition to use every substitute. We do not know whether it would be found feasible in the case of a number of small houses of similar design to cast the outer walls of such buildings in thin ferro-concrete with standards at the angles, and to form hollow walls by an inner and slighter lining of the same material. An interesting field for experiment is open to us because of the fact that time and material will have to be economised to a degree unknown before. A 7 in. or 9 in. outer wall mostly composed of air space, and absolutely impervious and fireproof, presents an interesting field for experiment, especially if arrangements could be effected for filling such a space with air warmed indirectly by fires.

Two Exhibitions.

Anyone visiting the galleries of the Alpine Club will be convinced that Mr. Augustus John can paint, but does not always care to show his mastery of technique. Sometimes he does his best, and his best is very good indeed; at others, like many accomplished actors, he must consciously try to see what people will swallow when it is backed by a name. The best things at the Alpine Galleries are portraits of well-known men and women or character sketches, like No. 35, "The Man with the Blue Neckerchief"; No. 52, "Old Ledanois"; a wonderful portrait of a boy, No. 19, "Robin," which is instinct and vivid with life; and Mr. John's portraits of Lord and Lady Howard de Walden, Nos. 16 and 18, represent the aristocratic type of face, which Du Maurier immortalised in *Punch*. Of another type, again, are certain portraits where we feel the painter has probably somewhat exaggerated a marked type. Among these may be mentioned No. 20, Mr. E. L. Lutyens; No. 22, Miss Kathleen Dillon; and No. 24, Mr. Ambrose McEvoy; and the portrait of Admiral Lord Fisher of Kilverstone, which we have seen before. The large decorative painting, entitled "The Tinkers," is full of decorative quality and a pleasing and successful piece of composition and colour. Side by side with these are a number of very crude landscapes, and small groups of figures, which we cannot take as being meant seriously, so crude are they in colour and in drawing. At the Leicester Galleries there is an interesting collection of Water Colours by Mr. Sutton Palmer, careful and delicate in their delineation and colour, if sometimes a little overlaboured and strained in execution, the best of which are some fine pictures of the scenery of the English Lakes; but the greatest attraction of the galleries is a fine series of Modern French Etchers from Méryon to the present day. J. F. Millet is represented by "Les Glaneuses" and "Les Bêcheurs"; J. B. Corot and E. Manet by many examples of their work. This is one of the most interesting exhibitions we have seen for a long time, and forms a most interesting contrast to the exhibition recently held at the same galleries, which included some of the finest work of the English School of etchers. Among other are such subjects as M. Steinlen's "Modeste entre de deux Ouvriers," a subject which would have appealed to a French artist only, but which is admirable in its verve and spirit. The same artist gives an admirable rendering of "A Sweep," traversing the long street of a little village, followed by his dog, which again shows the quickness of the Gallic artist in seizing the characteristics of a momentary phase of everyday life.



Messrs. Forsyth & Maule, FF.R.I.B.A. Architects. (See page 346.)

UNITY OF THE PROFESSION.

THE second of the series of informal conferences arranged by the Royal Institute of British Architects was held on December 5 at 9, Conduit-street, when Professor F. M. Simpson read a paper on "Unity of the Profession." Professor W. R. Lethaby took the chair.

PROFESSOR F. M. SIMPSON said: In opening the discussion, and advancing a plea for unity amongst architects, I am well aware that I am venturing on dangerous ground, and possibly laying myself open to the rebuke that "fools rush in where angels fear to tread." I understand it was resolved some time back that controversial matters should be held in abeyance until the end of the war, the reason given being that it would be unfair to the men serving at the front to come to a decision in their absence. With the principle of that resolution I heartily sympathise. I should be the last person to suggest any action of which they might disapprove. But for them, and others like them, we should not be meeting here to-day. But I confess I doubt if these men—who are now engaged on an infinitely bigger matter than even the future of architecture in this country—when they return from the trenches, the craters, dug-outs, and the mud, will want to plunge into the turmoil of what will appear to them but petty politics in comparison with the great decisions for which they have been fighting. I venture to think that if nothing is done now to advance these matters a step nearer solution, the remark of the majority on their return will be, What! still at the same old job? Haven't you settled that yet?"

I see a good many young men home on leave. They have but one thought for the future. When they have finished their present business of beating the Huns, their sole desire is to make up for the time they have spent—and well spent—fighting for their country, and to devote all their energies to advancing themselves in their profession. They will come back expecting that we, who, through age or other causes, have been unable to do what they have done, have still to a small extent done our 'bit" in straightening out their future for them.

The Society of Architects, I believe, some time back proposed a conference. This is the age of conferences. If the war has done nothing else, it has proved their utility and value. Speaking as an individual, and not as a member of Council, I can see no reason why a conference with the Society should not be held. Their aims and ours may be incompatible and fusion impossible. I don't know. A conference would show whether such is the case or not, and entering into a conference does not, of course, commit one to a settlement. Settle nothing at all now, if you like, either as regards that or any other controversial matter; but now is the time to *talk*. When peace is declared will be the time to *act*, and we should be prepared to act quickly.

There can be no diversity of opinion amongst architects as to the urgent need for unity in our profession. We have suffered from the lack of it for a hundred years or more. For unity means strength, and strength compels respect. If we had been united and strong at the beginning of the war, the architectural profession would not then have been, unfortunately for the country and ourselves, so completely ignored. Our President referred to this in his opening address last month; and the point was also exceedingly well put, although tardily, by Mr. Ernest Newton, Sir Aston Webb, and other members of the deputation which waited on Mr. Neville Chamberlain in February of this year. I will only add one remark. Never before in the history of the world, so far as I am aware, has a profession been virtually forbidden to practise by Act of Parliament. No doubt the prohibition was necessary. It was accepted as such; and to the eternal credit of architects throughout the country there has been no grumbling. Our only grievance—and I think a substantial one—is that when the Government stopped all private building enterprise, they gave public building work and public posts and appointments, which by right of training and fitness belonged to architects, to members of other professions, and to men of no profession at all.

It is no good crying over spilt milk; but spilt milk has a moral. The need for unity in the profession does not end with the conclusion of the war. It starts again, and with redoubled force, at the Declaration of Peace. Then, as never before, it is imperative that we should be united and strong. We must be in a position to make our wants known, our influence felt and our aims and aspirations respected. We must be able to approach public bodies, and speak to them with undivided voice, on all matters affecting our calling. We must be able to hold our own with members of other professions, and to stamp out the jacks-of-all-trades and the tradesmen who now too often try to usurp our functions and angle for work for which, both by their lack of training and artistic ineptitude, they are entirely unfitted. Above all, we must uphold the dignity of the art of civil architecture, for the advancement of which our Institute was founded and received its Charter.

The last should be our principal aim. We are not out merely to profit the Institute, or fill our own pockets; although if both result, so much the better. Our business in the first place is to consider what is best for *architecture*; what steps can be taken and what modifications made in our policy and constitution which, whilst inflicting no injury on anyone now—or at all events a minimum amount only—will produce the most beneficial effect on the future. We must look ahead—twenty, thirty, even fifty years hence.

The proposals for a new Charter were approved at the meeting held on June 29, 1914. The principle of registration was then accepted. I have no intention of going behind that decision. An enormous amount of work was done by members of the Council and others in the framing of the proposed Charter, and the thanks of all architects, whether belonging to the Institute or not, are due to these men for the trouble they took and time they devoted to the matter. The conclusion they arrived at was doubtless the best under the circumstances. But much has happened since June, 1914. Circumstances have changed everywhere throughout the world, and previous policies have been abandoned. Our conclusions should not be the only ones to remain immutable. It is permissible now to take a broader, more generous view than was possible then. Vested rights were regarded at that time as having an importance greater, I think, than their value warranted. The rights of Fellows and Associates were to be rigidly guarded; the disabilities of Licentiates in the main confirmed. More give and take is, I suggest, now possible, and, moreover, advisable.

In the proposed Charter the Institute ask for the right, under paragraph 3, *a*, *b*, *c*, to register practically all architects in Great Britain. The principle is admitted that all such men, good or indifferent, are to receive an official stamp. This stamp may, or may not, be of some pecuniary value to them in the exercise of their profession; but I submit that it will have no effect on the advancement of architecture, and do nothing whatsoever in the direction of unification. There will still remain the two old divisions—architects who are members of the Institute and architects who are not. The latter, having their stamp, are unlikely to apply for membership, will never take any interest in our or any other architectural body, nor trouble to use any influence they may possess in furthering the advancement of the profession as a whole.

The suggestion I venture to put before you is that the Institute should invite all architects, who, under the proposed new Charter, the Institute state, "shall be inscribed on the Register," to become members of our body.

If that invitation be generally accepted, it will doubtless mean some increase in the number of Fellows and Associates, but the majority of new men would probably become Licentiates. I may be told that the door to Licentiateship is closed. It can be opened again. If there be any rule to the contrary, it can be rescinded in view of the exceptional circumstances at present prevailing. We shall have, it must be remembered, in any case to provide special legislation for men who have served through the war. They deserve it, and have the right to demand it. The majority won't want to spend time going in for examinations for Associateship. Their sole idea, as I mentioned just now, will be to make up leeway and earn a living. If special terms are not offered to them, we shall lose them altogether. I admit it does not follow that, because we give preferential treatment to them, the same should be necessarily offered to others. But there are few architects under forty who are not engaged in one way or another on work of more or less national importance. The committee of election could exercise discrimination; and active service with the Colours would count in a man's favour when his application was considered.

Some modification of the restrictions previously imposed on Licentiates would doubtless be necessary if that class be greatly increased. I have never understood why a Licentiate, if he wishes to signify his connection with this Institute, should be obliged to tack after his name a tail which may easily be longer than the name itself. And I see no reason why Licentiates should not have representation on the Council; in fact, with a large increase in their number, representation would become imperative. I think Fellows and Associates alone should elect Fellow and Associate members of that body, but Licentiates might have their own voting paper and elect their own representatives independently.

These, however, are details. The main questions are: How would a large influx of new members help towards unity and the advancement of architecture? And what safeguard is necessary to ensure that architecture shall advance?

As regards the first, take a building simile. The Institute to-day may be likened to a block of concrete. It is not very large, but, despite our little differences in the past, homogeneous. It is strong enough to resist attack, and, more important still, to exercise pressure. Architects outside the Institute, or any other architectural body, are unmixed matrix and aggregate. Any effort made by any one atom is personal and detached. It can possess little weight, and may be counteracted by the effort of another atom. Even if these atoms join together into a number of small blocks, the influence that can be exercised by each block still remains small and subject to counteraction. But if all atoms attached themselves to a central block, not only would the size of that block be more than doubled but its power to resist interference or encroachment, and its ability to exercise pressure in the direction of extending its rights, would be increased proportionately to a still greater extent.

Outside architects at the present time benefit undoubtedly by action taken by the Institute. An appeal might be made to them to join on two grounds. First, that it is not fair that they should benefit from results towards which they subscribe neither time nor money; and, secondly, that adhesion would be not only to their personal advantage, but also eventually, if not immediately, contribute towards the advancement of the art in which presumably they are interested.

I should like to make quite clear that I am not advocating three *permanent* classes of membership of the Institute. Fellowship and Associateship should alone be permanent. The Licentiate class would be temporary; but open at the beginning for an indefinite period. The date of closure can be decided later. For some years, doubtless, the class would grow in numbers until it reached its meridian. Then it would begin to decrease, at first slowly, later more rapidly. And decrease would result from natural causes, from promotion of Licentiates to Fellowship or Associateship, but principally because Licentiates, once admitted to membership of the Institute, would be interested in our body, would work for its advancement, and would have no wish to see their class perpetuated indefinitely. Their advice to their sons and pupils would be "Study so as to qualify for Associateship." The Licentiates would gradually disappear. I picture to myself a scene fifty years or so hence, when an old man would be helped on to the platform at a meeting of this Institute, and introduced to the members present as the last surviving representative of the Licentiate class.

The other question I asked was, if unity is accomplished, what safeguard is necessary to ensure that architecture will advance. The only safeguard is education. The greatest mistake, in my opinion, the Institute ever made was putting the cart before the horse five and twenty years ago, and establishing a scheme of examinations when education—outside such as could be obtained in architects' offices—was almost non-existent. We have advanced a little since then, but our methods are still chaotic and too much subject to individual caprice. A good deal still remains to be done in the way of settling fundamentals before the education of architects can be said to rest on a sound and satisfactory basis. This, however, should not be difficult to arrange if, as I suggested last year, the heads of architectural schools meet in conference, and the Board of Architectural Education consider the matter fully and seriously.

A course of training in a school of architecture should, I submit, be compulsory for all students. At present it is only optional. I have already advocated this and intend to urge it again when opportunity offers. It is useless to expect unity amongst architects so long as there is variance as regards the essentials of architectural education, and some students receive no training at all except what they obtain in an architect's office.

The great war in which we are engaged will, it is hoped, eventually widen the horizon of humanity. It has already effected many and wonderful changes. It has proved the value of and absolute necessity for unity amongst allied nations, and how lack of unity spells disaster.

It has upset all preconceived notions as to scale, not only in military matters and finance, but in all other subjects. Solutions which before the war would have been regarded as erring on the side of excessive liberality are already condemned as utterly inadequate. Sociological and educational outlooks have entirely altered their boundaries. The principle that all difficulties should be met squarely, and settled, if possible, on broad, comprehensive, far-sighted and general lines, is becoming more and more acknowledged. In that spirit we should approach our difficulties. I have ventured on some suggestions; I would welcome others bolder and more sweeping. We want to end our old controversies once and for all, in the same way as we are resolved to end this war by a peace that shall be permanent. Neither a great war nor our own smaller squabbles must be allowed to crop up again twenty years hence. An absolute millennium may be an impossibility, but if anything in the nature of a millennium can ever be reached, now is the time—following the all-round upheaval caused by a great Armageddon.

Professor Lethaby expressed himself in general sympathy with the address. Whilst the matter was of tremendous importance from the point of view of solidarity, there was also the economical point of view. He wanted to see something done because he had long felt that their country cottages and all that sort of thing were not the best. He was not content with anything but leading in the world, and to do anything they must aim to lead. It might not be that they would come out at the top ultimately, but still it was essential to aim at it. They heard a great deal of talk as to the advancement of architecture, and to him that meant better towns and cottages, better public-houses and stations, and everything of that sort, which would enable them to become more efficient in the future in production.

Mr. Sadgrove, speaking as President of the Society of Architects, pointed out that the Society had aimed at registration for over a quarter of a century. They had tried to come to the Institute and talk, but were told that it had been agreed that no controversial matters should be taken during the war. There was not the slightest chance of either body getting a Bill for registration through Parliament if they were in conflict. The Society were prepared to lay their Bill before the Institute, but, of course, if the Bill of the Institute carried out their ideal, they were willing to give way. Whilst the Society had no ambition to be top dog in carrying through registration, still they were strongly of opinion that without it there would be no unity in the profession. In the provinces there was unrest, and at the bottom of it was the desire for registration. The Society was doing good work in the matter of the form of contract and so on, but the Builders' Association pointed out that there was no reason for negotiating with two bodies. Whilst the Society wanted to confer with the Institute they did not come begging, because they felt they were doing the right thing well.

Mr. Wigglesworth pointed out that it was the question of registration which had wrecked any chance of unity for the past 30 years. The obtaining of registration by bodies like the doctors and dentists had resulted in the creation of vested interests, and it was not likely that Parliament would grant such powers to other professions. He considered they could have registration without legal status, for they could have a professional union just as they had trade unions. It seemed to be the feeling that whilst the Institute had advanced the mental side of the profession, yet the welfare side of architects was much where it was. If they divided the functions, could they not get on? Could not the Institute concentrate on the mental side and combine with the Society of architects and ask them to take over the welfare side? If they had the power which numbers gave, they could have Parliamentary representation. They might not get a member of their own, but surely they could get some members of Parliament sufficiently interested in architecture to watch their interests. They might also have a legal defence committee, to which every practising architect might subscribe a guinea a year. The possession of a substantial fund would enable them to test decisions which were to their detriment, as in the recent decision as to the architect's responsibility for dry rot. They might have an architectural bureau of their own which could be made self-supporting by the charge of small fees, and they could also arrange to have tests made in regard to matters connected with their buildings, for which, at present, they had to pay exorbitant fees. These and other matters could be dealt with to the advantage of the profession.

Mr. Arthur Butler suggested that the question of registration was not necessarily controversial, and he felt that those of their profession now at the Front would be pleased if on their return they found the Institute had made an effort towards unity. Professor Simpson had said they must consider what was best for architecture, but he thought that which was best for architects should also form an important point in development. Many architects did not go into the profession for the benefit of their health, but with the legitimate aim of making a living, and they ought to have all possible assistance in the business side of their profession. It was suggested that those serving at the Front should have preferential treatment, but it must not be forgotten that others, who were precluded through age and other causes from serving, had lost their practices and were probably suffering more than the younger men who had the asset of youth. Suggestions had been invited and he would make some of a sweeping nature. The opposition in the Institute to registration came from the Associate class, who having passed a stiff examination objected to other people being brought in for other considerations. It was this class which had the voting power and could govern the Institute. He suggested that gentlemen eligible by age for the Fellowship should become Fellows, but not necessarily at an increased subscription. The Associate class should remain as now, and the members of the Society of Architects should be taken into the Institute *en bloc* as a separate class. They could call them Members if they liked, but they would be a separate class, who, in course of time, would die out like the Licentiate class. He hoped a large conference would be held to discuss the matter, at which there would be provincial representation, for he felt the Institute would have to cater more for provincial architects in the future.

Mr. Fletcher said the suggestions of Mr. Wigglesworth were extremely valuable. One thing architects had to contend with was that every man and woman considered themselves architects and were prepared to jump in and do their work. Consequently, there was an immense number of people who would not employ architects, but would have the work done by unregistered people.

Mr. Lovell said that, speaking for a large number of Associates, he warned the Institute that it would be a dangerous thing to throw the door open again to Licentiates. He thought a conference between the Institute and the Society might do good. Associate members had passed the examinations the Institute required, and would resent the bringing wholesale into the Institute of persons to hold a position similar to that which they held.

Mr. A. Keen sent a communication in which he remarked that Professor Simpson's proposals were far-reaching, but, in his judgment, generally sound. He did not think, however, that they must be accepted too literally. The bringing into the Institute of all those it might be wished to add might result in a considerable decrease in the present number. He suggested that a scheme drawn up between the Institute and the Society might be presented to members when the war was over, and the men at the Front had come back.

Mr. A. Clyne asked how Mr. Wigglesworth would distinguish between mentality on the one hand and welfare on the other.

Mr. Wigglesworth said the welfare of the architect was everything which concerned the position of the architect as distinct from architecture.

Mr. Jemmett said that lack of unity was due largely to lack of a united idea as to what an architect was. One could pick out half-a-dozen different classes of architects and in some cases their interests were almost opposed. They ought first to try and make up their minds as to what the architect was. The tendency of the times was towards federation, and he looked forward to the time when the architects of all the world would confer together. Mr. Sidney Webb had told them that architecture was public service. He looked on it as human service for humanity. It was for them to enquire how they could best render that service, and for outsiders like Mr. Webb to say where that service was wanted. The interests of architects as individuals often conflicted with the interests of architecture and the difficulty was that no society could look after both. If the Institute looked after art and the Society looked after the material interests of architects, it might be well and good. They would often be in flat contradiction to each other, but it was better to have contradictions between two societies than between the members of one society.

Professor Adshead said he was in entire sympathy with the views of the Associates, but there was great need for unity, and to him

it was a great pity that the Society of Architects could not, in some way or other, be joined up with the Institute. Probably solid unity of the profession would give the profession as much strength in the eyes of the public as a registered body. If they could get the Society to join them—even by only using the same premises to begin with—they might become federated in a closer and closer professional status without infringing in any way on the rights and position which the Associates rightly claimed to hold. He would warn them, however, that there was danger in carrying the private welfare of architects a little too far if they were not careful. He was certain their first interest must be architecture, and that other things would follow.

Mr. Caulfield carried the simile of Professor Simpson of the concrete a step further and suggested that after the atoms had been brought together it was necessary to pick away some of the original block to form a key for the new material. This might be done by alterations of the rules of the Institute and the sweeping away of dust and other foreign matters.

Professor Lethaby endorsed the views of Professor Adshead as to keeping the interests of architecture in the foreground, for it was only by fulfilling in a high sense the public function that they could get their remuneration. Mr. Butler spoke good English common-sense when he said that architects did not go into the profession for the benefit of their health, and yet it was not true. Architects were like soldiers and doctors and clergymen, and like them it had to be recognised that they were fulfilling a great public function.

Professor Simpson, in reply, said that it was generally agreed that unity was necessary, but his idea of unity was one big body. They would probably all agree that engineers exercised greater power at present than architects, and engineers were strong because they were united. He would like to see all architects brought together in one distinct body. He regretted that the Associates were likely to stand out rigidly for what they regarded as their rights, and he would ask them to think more of the actual work done by a man than the passing of an examination.

MEETINGS.

FRIDAY, *December* 14.

Institution of Mechanical Engineers.—General meeting. 6 p.m.

MONDAY, *December* 17.

Society of Engineers (in the Apartments of the Geological Society, Burlington House, W.).—Mr. Chalmers Kearney on "High-Speed Railways after the War." 5 p.m.

Royal Society of Arts.—Professor H. C. H. Carpenter, M.A., Ph.D., M.Inst.M.M., on 'Progress in the Metallurgy of Copper" (Lecture III). 4.30 p.m.

TUESDAY, *December* 18.

Illuminating Engineering Society.—Presidential address, by Mr. A. P. Trotter. 5 p.m.

Institution of Civil Engineers.—Paper to be submitted for discussion: The Buenos Aires Western Railway Tunnels Under the City of Buenos Aires, by Mr. William Lowe Lowe Brown, M.Sc., M.Inst.C.E. 5 p.m.

WEDNESDAY, *December* 19.

Royal Society of Arts.—Professor J. Wemyss Anderson, M.Inst.C.E., M.I.Mech.E., on "The Cold Storage Industry." 4.30 p.m.

THURSDAY, *December* 20.

Concrete Institute.—Mr. H. Kempton Dyson and Mr. Ellis Marsland on "The Effects of Fire on Reinforced Concrete Buildings as Demonstrated by some Recent Examples." 5.30 p.m.

Book Received.

THE STRENGTH OF STRUCTURAL ELEMENTS. By Ernest H. Sprague, A.M. Inst. C.E. (London: Scott, Greenwood & Son. 4s. net.)

GENERAL NEWS.

New Royal Academician.

At a General Assembly of Academicians and Associates of the Royal Academy Mr. F. W. Pomeroy, A.R.A., sculptor, was elected a Royal Academician.

Glasgow Art Club.

At the annual meeting for the election of artist members held in the Glasgow Art Club, 185, Bath-street, the following were elected artist members:—Mr. John Watson, F.R.I.B.A., Glasgow; Mr. W. H. Clarke, Kirkcudbright; and Mr. Leslie Hunter, Partick.

National University of Ireland.

The assessor's decision in the architectural competition for the new buildings of the National University of Ireland has now been announced. The designs of Messrs. W. G. Clayton & Keating, architects, of Dublin, have been placed first; Messrs. O'Callaghan & Webb, second; and Mr. E. Bradbury, third.

Mr. J. P. White.

We regret to announce the death, after a long illness, on November 27, of Mr. J. P. White, the Chairman and founder of the Pyghtle Works, Bedford. The business, which in 1911 was converted into a private joint-stock company, will be conducted on the same lines by his co-directors, Messrs. James S. White, John P. White, jun., and Edmund Walker.

A Glasgow Reconstruction Scheme.

A local inquiry has just been held in the Burgh Court Hall, City Chambers, to consider the petition by Glasgow Corporation for an Order confirming the reconstruction scheme for the Parliamentary road area. Mr. John Wilson, F.R.I.B.A., Architectural Inspector to the Local Government Board for Scotland, was appointed by that body to act as Commissioner under the Housing Acts at the inquiry. The scheme is described as the City of Glasgow (Parliamentary Road) Reconstruction Scheme, and is promoted by the Corporation under the Housing of the Working Classes Acts, 1890 to 1909. The object of the proposal is to improve the area between Kennedy-street, Glebe-street, Parliamentary-road, and Hatfield-street by the removal of the back-land buildings there. There are about 2,373 square yards in the area, and 12 tenements will be affected.

Glasgow Architectural Craftsmen's Society.

Mr. Vernon Constable, A.R.I.B.A., gave a lecture on "Modern Paris Architecture," at a meeting of the Royal Technical College Architectural Craftsmen's Society, held in the College on the 7th inst.; Mr. Thomas Whyte, President, in the chair. In dealing with four of the most important modern buildings in Paris—the Greater Palace of the Fine Arts, the Lesser Palace of the Fine Arts, the Galliera Museum, and the Chapel of Our Lady of Consolation—Mr. Constable showed numerous lantern views of each, and gave details of many important features. He pointed out the beauties of the compositions and the characteristics of the French architecture. The chapel, he said, was erected to commemorate the Charity Bazaar Fire, which occurred in 1897 and resulted in the loss of 130 lives. It was a fine example of the value of the study of sculpture to an architect.

Victoria and Albert Museum.

A commemorative exhibition of the works of the late Auguste Rodin has been arranged at the Victoria and Albert Museum, and is now on view in the East Hall, near the Cromwell-road entrance. In the early months of the war, as will be remembered, Rodin gave to the nation, for preservation in the Museum, a magnificent group of his works, with the express intention of symbolising in the gift his admiration for British soldiers fighting side by side with his own countrymen. This collection, which is probably the largest individual collection of Rodin's works outside Paris, has now been supplemented by a number of other works, which their owners have generously lent to the museum for this exhibition. Among these may be mentioned a marble group, "Les Bénédictins," from the Tower of Labour; busts of Legros, Gustave Geffroy, Lord Howard de Walden, and Mrs. Charles Hunter; "L'Homme au nez cassé," and a small version of "Le Penseur." The exhibition also comprises a collection of photographs of other Rodin sculptures, as well as a few important etchings by Rodin, so that visitors and students have an exceptional opportunity of studying the work of the great French master.

Sir Swinton Jacob.

Colonel Sir Samuel Swinton Jacob, K.C.I.E., C.V.O., died at Weybridge on Tuesday of last week in his 77th year. The son of Colonel W. Jacob, of the Bombay Artillery, he was one of the last batch of youths to enter the East India Company's Military College at Addiscombe, whence he was granted a direct commission to the artillery and sent out to India on the morrow of the Mutiny. In 1863 he qualified as surveyor and civil engineer, and after a short time in the Bombay Public Works Department, he accepted, in 1866, the position of engineer to the Jaipur State, which he filled continuously from the age of 26 to that of 71. He was extremely active in mind and body, and the State owes much to him for the prosecution of important irrigation schemes and many other developments. He will be chiefly remembered for his whole-hearted devotion to Indo-Saracenic architecture. Evidences of his skill in combining modern convenience with Eastern tradition in architecture are to be found in every part of Northern India. No sooner had he returned to England, in 1911, on retirement, than his name came into prominence in connexion with discussions as to the most fitting architecture for the new Indian capital at Delhi, and there were many strong advocates of an entirely Indo-Saracenic style. The Secretary of State associated him with Mr. Lutyens and Mr. Baker in preparing architectural plans, but after a short time he retired from the work on account of failing health.—*Times.*

Standard Houses.

Mr. Hayes Fisher, President of the Local Government Board, received a deputation on Tuesday from the National Housing and Town Planning Council on housing after the war. Mr. Henry R. Aldridge, Secretary of the Council, introduced the deputation, and Mr. S. Smethurst chairman, Mr. H. V. Lanchester, Mr. G. J. Strange (National Federation of Building Trades Employers), and Major C. P. Lovelock (clerk to the Carshalton Urban District Council) also spoke. Mr. Hayes Fisher, in replying, said he did not want to damp their enthusiasm, but he would not be exercising his responsibilities in an adequate manner if he did not show the red light at the present moment in connection with all propositions which required millions of money. He agreed that they had a unique opportunity of improving the housing conditions of this country, and if they could only build 100,000 houses they should be an advance on the ordinary standard of building. Their aim should be to have 12 houses to the acre in towns and eight to the acre in the country. They should be houses that the working man would find it a pleasure to live in, so that he would be tempted to put more of his money into the rent. With regard to the standardization scheme, a committee was now considering the whole question. If the State was to build two or three hundred thousand houses it would be necessary to resort to standardization to a large extent. The difficulty of getting the right kind of labour for the manufacture of the necessary material would be enormous, and he thought that some of the factories now being used for the making of weapons of destruction should at the right times be converted for the purpose of making the material necessary for the erection of the houses. With regard to the purchase of land, he had been granted a small sum of money which he could place at the disposal of some local authorities for the purpose of procuring land in cases where it was obvious that they would lose a good bargain if such purchase was delayed.

Leading Contents.

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ILLUSTRATIONS.

Russian Ecclesiastical Architecture of Four Centuries.

IF architecture is the reflection of civilisation in stone, Russian architecture should enable us better to realize the gulf which lies between Russia and the peoples of the West. The earlier foreign influence affecting the area now known as European Russia was that of Byzantium, and the first Russian churches are very crude variants of the churches of the Eastern Empire. Even these show an enormous modification of type, the low, wide-spreading Byzantine dome, often covered by a flat roof of tiles, becoming transformed into a series of low, tower-like forms frequently surmounted by semi-bulbous domes, the whole conveying an impression of the East absent from the work of the prototype. The old churches of Russia must possess undoubted picturesque quality and antiquarian value, but from all we have seen must be almost wanting in architectural merit apart from their decoration in the form of painting and ornament. It is difficult to discover, even in these earlier and, we might say, better examples of Russian architecture, any sign of that so often strongly marked sense of architectural dignity which distinguishes so many of the buildings of the eleventh century in England and in Western Europe. The application of ornament, where it exists, appears to be more in the unmeaning and indiscriminate sense that we are used to in Hindu and Burmese buildings, and the thought and subtlety of Byzantine work are entirely wanting. Russia suffered, alone among European peoples, from a long period of Tartar rule, in which her people and the rulers of the various principalities were held in subjection by the Grand Khan. How far the result of this period of subjection has affected the character of a whole people it would be hard to say, but judging by contemporary architectural work later Russian types in building appear to be increasingly Oriental in their character. Judging by the illustrations we give with the consent of the editor of *L'Art et les Artistes* and the interesting article which accompanies them by M. Louis Réau, the former Director of the French Academy of Petrograd, we should be justified in saying that Eastern influence had made a deep and wide impression on the character of Russian building. It is true that M. Réau emphasises the argument that the later buildings, many of which were carried out in wood, are more typically Russian than the earlier and more Byzantine ones; a fact which does not militate against the impression that they are also far more Asiatic in type, and far more akin in form to the Dravadian buildings of Southern India and what we know of Burmese and Siamese buildings, than to general European art. The Church of the Transfiguration at Ostrovo and that of Vasili Blajennoi at Moscow, both dating from the sixteenth century, have the characteristics we refer to, and both are built up of forms like the Dravidian temples, purely meant for purposes of external display, and both are distinguished by an absence of architectural dignity. They are, in fact, a crude jumble of incongruous forms. The Church of the Intercession of the Virgin at Fili, near Moscow, is built of wood, and, like many of the Russian churches of later date, is placed on a raised terrace and approached by flights of steps. The retreating stages give it somewhat of a Chinese character, but the subtle artistic sense which runs through the buildings of China finds no echo in the monstrous mixture of forms, which is more like some structure hastily put together for exhibition purposes than a serious work of architecture.

From M. Réau's article we gather that the influence of the clergy was always directed towards the maintenance of the Byzantine type with five domes, but the natural taste of the Russians and the prevalence of wooden construction led to the adoption of a pyramidal type wherever it was possible. The most dignified of the buildings we illustrate is the Kremlin at Rostov, where the long lines of plain walling relieve the effect of the heightened mass in the centre crowned by its five domes. The five fortified churches which surround the Palace of the Metropolitan are dedicated to the Resurrection, the Saviour, St. John the Evangelist, St. Gregory of Nazianze, and the Virgin Hodigitria of Smolensk. M. Réau claims, and we think fairly, for Russian art an individuality of its own which borrows little from Byzantium and certainly nothing from Western Europe. Whether the originality of conception is a thing to be grateful for or to regret is another matter, but all who have any sense of the meaning of architectural style must feel that the people who found their natural expression in such forms are divided in many other ways from the customs and ideals familiar to us in the West. The little window looking on to Europe, which Peter the Great made when he founded the city which bears his name, was not a wide enough opening to effect a fundamental change in a country distinguished by the strongest individuality, and which, in spite of the enormous number of races which it contains, is probably more homogeneous in general character, from the Baltic to the Pacific and from the Arctic Ocean to the borders of India, than any other great nation except that of America. The homogeneity has been shown in the past by the ease with which the Turcomans and other races have been assimilated; and whether the Russia of to-morrow is to remain one Power or a group of States it will probably always be a land apart from others, despite the veneer of modern buildings of a purely Western type built in its great centres of population.

Repton School: Power Station.

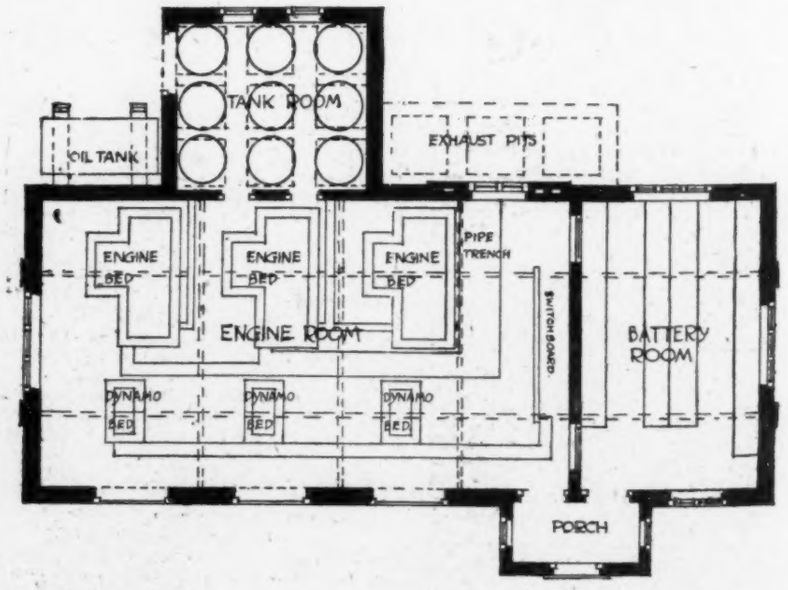
This power station was erected in 1910, when the first buildings at Repton School were lighted by electricity. The building was planned to receive three sets of Hornsby's horizontal oil 30 h.p. engines, each set provided with three cooling tanks placed in a separate room. A switch-board is provided in the engine room and is connected with a 50-cell battery in an adjoining room. The site is in a position central with the scattered buildings of the school, and the current is conveyed by overhead mains. The whole of the electrical work was carried out by Messrs. Tyler & Freeman, of Chancery-lane, London; and the building, which is faced with hard "Midland" multi-coloured bricks, by Messrs. Lowe & Son, of Burton-on-Trent. Messrs. Forsyth & Maule were the architects.

Repton School: School Office.

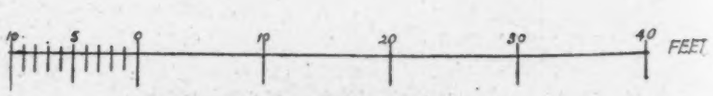
This building is the residence of the School Clerk and in it the ordinary administrative work of the school is carried on. The scheme consisted of an entire reconstruction as an office of the front part of an old house, the rear portion being altered and adapted to domestic requirements. The extension has been covered with rough-cast to conform with the old re-used building. Old roofing and other materials were re-used. Messrs. Forsyth & Maule were the architects.

Shrewsbury School.

We also give further illustrations of the new buildings at this school. The work is described in our issue for Nov. 30.

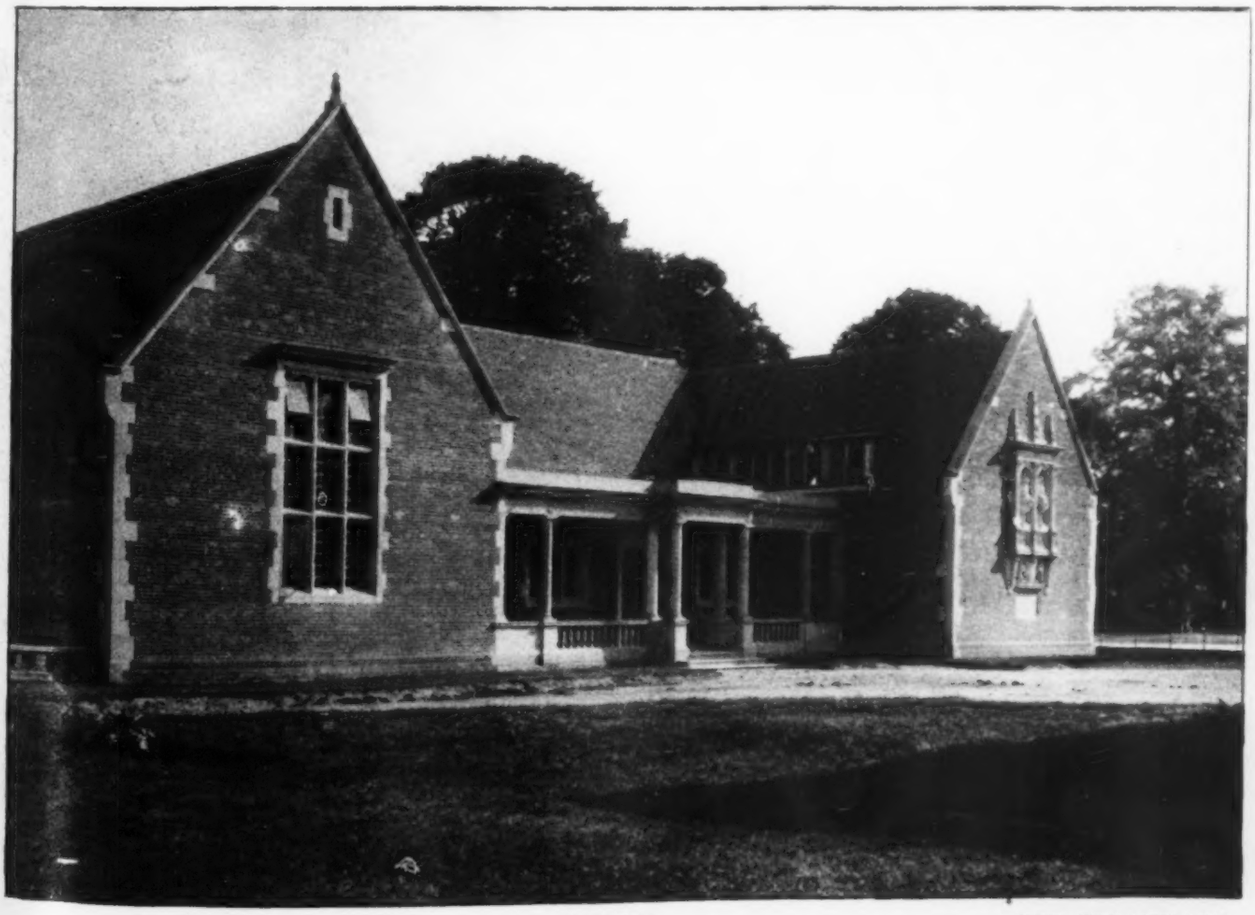


GROUND FLOOR PLAN.



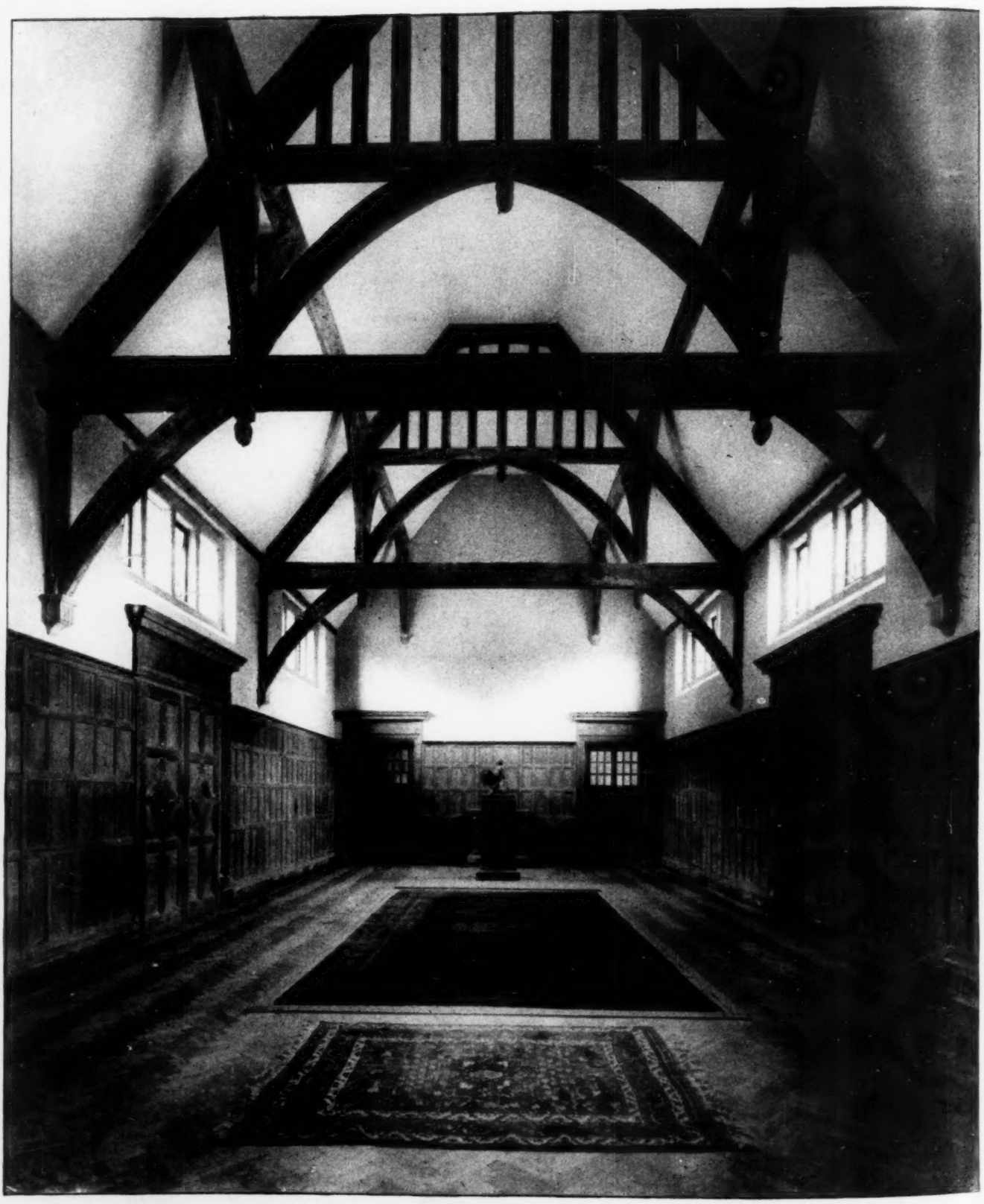
Repton School: Power Station.
MESSRS. FORSYTH & MAULE, ARCHITECTS.

BACK VIEW, OVERLOOKING THE SEVERN



FRONT VIEW. PHOTO: THOS. LEWIS, LTD.

MOSER BUILDING, SHREWSBURY SCHOOL.—MESSRS. FORSYTH & MAULE, FF.R.I.B.A., ARCHITECTS.



MOSER BUILDING SHREWSBURY SCHOOL: HALL.—MESSRS. FORSYTH & MAULE, FF.R.I.B.A., ARCHITECTS.

PHOTO: THOS. LEWIS, LTD.

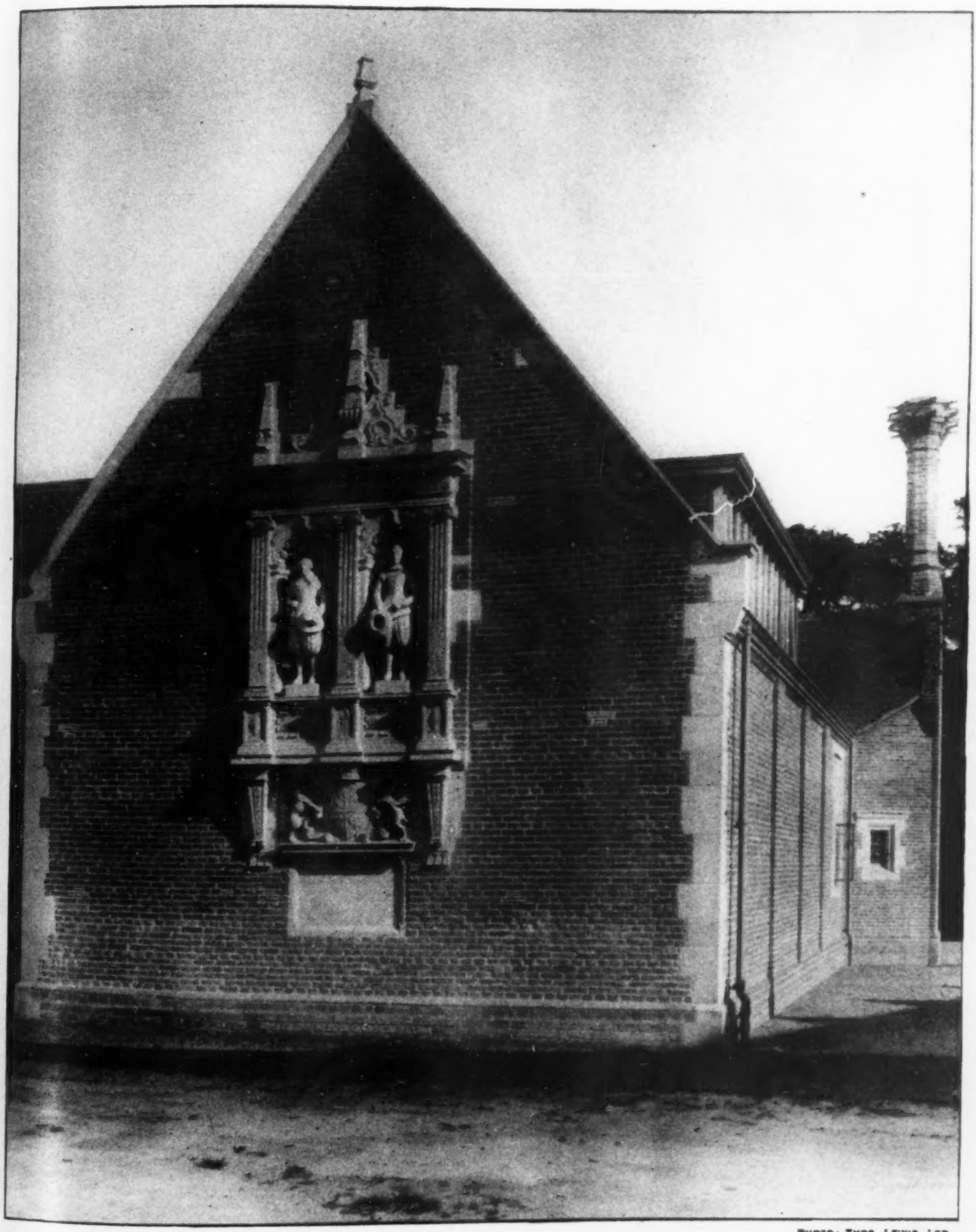
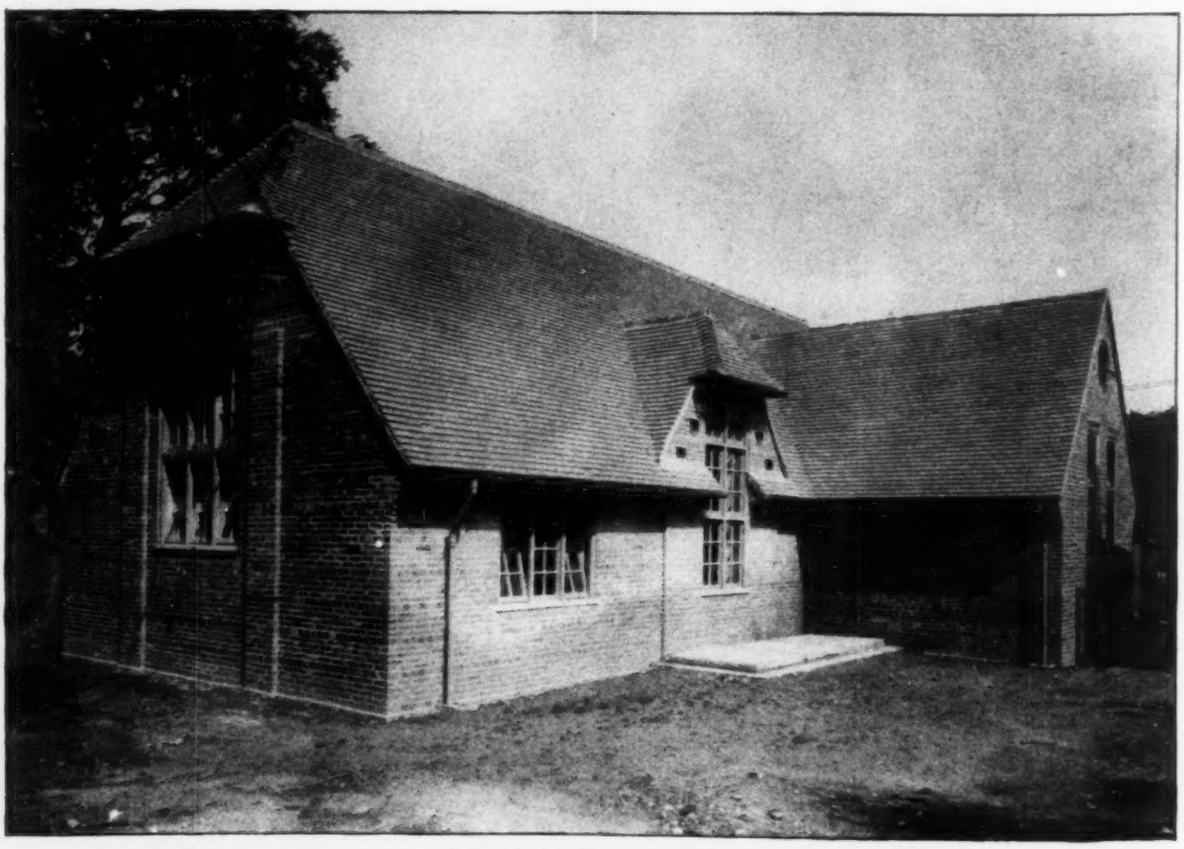


PHOTO: THOS. LEWIS, LTD.

MOSER BUILDING, SHREWSBURY SCHOOL: SOUTH GABLE OF PICTURE GALLERY.

MESSRS. FORSYTH & MAULE, FF.R.I.B.A., ARCHITECTS.

OFFICE.



ELECTRIC POWER STATION.

REPTON SCHOOL.—MESSRS. FORSYTH & MAULE, FF.R.I.B.A., ARCHITECTS.

PHOTO: THOS. LEWIS, LTD.

CHURCH OF THE INTERCESSION OF THE VIRGIN,
NERL, NEAR VLADIMIR, A.D. 1165.

THE KREMLIN, ROSTOV. 17TH C

CATHEDRAL OF THE ASSUMPTION, MOSCOW, A.D. 1475.

CHURCH OF VASILI, BLAJENNOI, MOSC

RUSSIAN CHURCHES. FROM "L'ART ET LE

TH CENTURY.

CHURCH OF THE TRANSFIGURATION, OSTROVO, A.D. 1550.

OSCOW, A.D. 1560.

CHURCH OF THE INTERCESSION OF THE VIRGIN,
FILI, NEAR MOSCOW, A.D. 1693.

T LES ARTISTES." PARIS.

CORRESPONDENCE.

Building By-laws and some other Matters.

SIR,—In spite of the meagre response in your columns to the challenge thrown down by Mr. Chambers Smith to those architects who have found building by-laws vexatious, inconsistent and inimical to some desirable qualities in cottage architecture, is he not somewhat rash in his conclusion that his four weeks' waiting proves the "collapse of anti-by-law architects"—or the collapse of their case against the by-laws, which I suppose is what he really means? Let him not too readily lay the flattering unction to his soul that "the amusement of those who are officially concerned with the administration of the much-abused by-laws" consequent upon that supposed collapse will occasion the arch-heretics very much concern, nor assume that the illumination of opinion which will result from the correspondence which has taken place will compel the conversion of such heterodox people as Mr. Baillie Scott and Mr. Voysey, or scare their clients from the "caprices" which the by-laws would fain prohibit.

Surely Mr. Chambers Smith, in his letter in the *Builder* of October 12, is inconsistent. In the second paragraph expediency urges him to flourish his former statement as to the entire absence of building by-laws in the majority of rural villages (a condition of things which certainly does not obtain in the majority of villages in these parts) and the blessings in other favoured rural districts of the recent L.G.B. model by-laws which enable an owner to "erect the walls, roofs and floors of any material he chooses" (what an opening for the proverbial coach and four!); but in the last paragraph his by-law soul returns to her first love and hugs this cottagers' Magna Charta, which is supposed to have atoned for the absence of the architect, secured to the cottagers "hygienic and structurally sound dwellings" and ample air space, and baulked the speculative builder of his unholy profits! Verily Mr. Chambers Smith has more credulity than would be justified upon an impartial contemplation of many concrete instances produced under the protection of this Magna Charta.

Now I should hesitate to become an advocate of the removal of all restrictions upon cottage or other building; the honest man recognises that his liberties must to some extent be conditioned by the necessity for dealing with the man that is not honest; but having seen some examples of the work of Mr. Baillie Scott, Mr. Voysey and others of their ilk on the one hand, and many more examples of the travestics which have materialised under the ægis of a set of undiluted by-laws on the other, I am driven to wonder why the one should be penalised and the other exalted, the evidently honest man maligned and the by-law juggler encouraged.

"Mature reflection" may show to "those concerned with by-law administration," but certainly not to Mr. Voysey, "W. F. S.," or a plain man such as myself, that the statement to the effect that increased height of rooms increases the cost of building, ruins the proportions of cottages, and does not necessarily secure proper ventilation, is either insupportable, unwarrantable or foolish. The contention that an addition of, say, three feet to the height of a two-story cottage adds to its cost and affects its proportions hardly merits these terrible adjectives, and the supposed advantages of high rooms as regards ventilation would appear to be somewhat discounted by recent conclusions, judging from the "Note" in your issue of the 16th ult. And as regards the effect of by-laws on the elevations of cottages (the question as to whether elevations are enforcable or not is immaterial) nothing, surely, could be more fallacious than to suppose that by-laws prescribing heights of rooms, and areas and heights of window openings (by-laws which have applied to a huge proportion of cottages erected in this country since by-laws have obtained) do not affect and largely control the elevations and produce the hideousness abhorrent to Mr. Voysey and many others. Compliance with by-laws does undoubtedly involve expense, and, the economic factor coming in, the plan has suffered no less than the elevation, as Mr. Baillie Scott has shown. The occupier may have got what Mr. Chambers Smith would accept as a hygienic and structurally sound dwelling, but he has certainly in very many instances got a travesty of convenience and common sense; he may be encouraged to soar, but he is very definitely forbidden to roam.

It would, perhaps, be unwise to admit a minimum height of 6 ft. 6 ins. for rooms, at all events without due relation to floor space, but I may be allowed so far to support Mr. Baillie Scott's attitude as to state that I spend many hours in a room only seven feet in height, some twenty feet in length, and of an average width of about ten feet, without experiencing any of the ill-effects that higher rooms are supposed to obviate.

As regards concrete instances of the vexatious, unnecessary and expensive interference of by-laws with reasonable and economical erection of cottages and development of building land in both rural and urban districts, if Mr. Chambers Smith's "exceptional opportunities in connection with by-law administration," have not brought him into contact with very many such instances, either his experience has been exceptional indeed, or he has been retained on the wrong side of the case to acknowledge them. The experience of the majority of architects and others engaged in the erection of cottages abounds with such instances, although these people do not crowd your paper with them for Mr. Chambers Smith's enlightenment. May I, however, cite one or two from recent experience of my own?

Rigid insistence on a rear-paving by-law and on a 36 feet road by-law involved considerable unnecessary expense in the erection of some eighty cottages—part of a larger scheme on garden-village lines—and the development of the site, secured no sanitary advantage, and rendered ugly and unproductive some two thousand square yards of what should have been garden ground; while regulations as to minimum heights of rooms and area and height of windows certainly "controlled" the elevations and added to the cost of the work. By the way, I quite agree that in the great majority of cottages the cost of windows, measure for measure, is considerably greater than that of walls and plaster; my own quarrel with the by-law in this connection is that in many instances it affects quite unnecessarily both elevations and cost and takes no account of the aspect or position of the window itself or the presence or absence of obstructions near or distant.

In another instance, that of a semi-detached pair of cottages, with an outdoor wash-house common to the two, the rural district authorities demanded:—(1) Three separate connections from the water main, (2) the setting back of all window and door frames 4½ ins. from the wall face although all windows had solid frames, (3) the provision of built up ash-bins of enormous capacity, (4) the encasing in six inches of concrete of cement-jointed drains outside and below the level of any foundations, and (5) a uniform height of all rooms over the entire floor area. All these were unnecessary; some were complied with and some were not; but considerable correspondence, vexation and delay were occasioned and cost increased.

In the last-mentioned case a very arbitrary and irritating element in the person of the District Surveyor constituted the chief difficulty. This kind of element Mr. Chambers Smith apparently admits, although he does not tell us how to avoid it, and indeed it is impossible to avoid it under the existing system of by-law administration. The surveyor in question was quite a little tin god in his way, and he was for a very long time, in all matters in dispute, systematically supported by his Council, a small part of that "discerning public," in which Mr. Chambers Smith has far more faith than I.

Now, if it be possible to devise a code of by-laws governing the erection and amenities of cottages and other dwellings that shall be entirely reasonable, and a satisfactory and sufficiently elastic system of administering them, by all means let us materialise this counsel of perfection and apply it to all areas, both rural and urban; for I am unable to understand why, if certain conditions are essential to a hygienic and soundly constructed dwelling in an urban district, those same conditions are not as essential in a rural district. The health of the rural inhabitant and that of the urban are of equal importance to the State, and no amount of meticulous insistence on regulations as to heights of rooms and sizes of windows and diameters of drain pipes and other such matters in urban areas can really counterbalance the evil effects of the crowding of dwellings upon the ground; nor can the advantage of living in a ten-acre field atone for the absence of what may be essential to a healthy dwelling. The net result of what the existing system of by-law incidence allows and prescribes is to fetter the urban occupier in the matter of elbow-room indoors and out, and to penalise him in the payment of interest on expenditure which is considered necessary over and above what may suffice for his rural brother, in order to atone for his disability in the matter of space; *and to swell the profits of the land speculator.* It is surely a mischievous thing that land should be made to carry the whole of the profit of a building scheme, as we are assured in your columns is often the case; this cannot but tend to reduce to the minimum the quantity of land allotted to each house and to increase its proportionate cost and, consequently, the amount of increment value duty to be charged upon it.

Compulsory and sensible town-planning, strict limitation of the number of houses per acre, reasonable regulations of general application governing building and sanitation, the removal of any taxation that can be shown to be unjust to the community and not merely to the speculator in land, and efficient means of dealing with objectionable, dirty, destructive, and unprincipled occupiers as they deserve, would appear to be desirable in the interests of health and justice.

Abler combatants than I may protest against what in recent issues of the *Builder* would seem to be half a defence of the slum on the ground that the public tolerated it (the public neither discerned nor cared over much, but the land jobber and jerry-builder were equal to the occasion); against the probable results of the standardisation of cottages; against the encouragement of building calculated to disintegrate in forty years so that new fads may have a chance and a feverish and fictitious activity may be given to the building trade; against what strikes one occasionally as a rather too evident political prejudice in the present-day attitude of a journal which it has been a pleasure to subscribe to for twenty-five years; and against a somewhat exaggerated presentation, as one feels at times, of the case for Capital. If such friendly combatants should take up the cudgels I shall be an interested spectator and my next half-year's subscription will be a certainty.

I have only to add that this letter was drafted before Mr. Baillie Scott's letter appeared in your issue for November 23.

HERBERT SMITH.

*** We have never defended the building of slums, but have simply pointed out the fact that the responsibility for them largely rests on the indifference of those who have taken no action to render their erection impossible. We doubt whether further future improvements in planning will deserve the name of fads any more than present improvements on the past do, but if our contributors can show us: first, that no further improvements are possible; and secondly, that the local requirements in respect to accommodation will not be altered by any future distribution of industrial activity, a case can be substantiated for building cottages for "eternity." All we urge is that these questions shall be considered, and that it is wisdom to consider the period for which a building will serve its purpose before spending money on it. As far as Capital and Labour are concerned, we hold that each is entitled to justice, and the rights of neither should be sacrificed to temporary political expediency.—EDITOR.

Building By-Laws.

SIR,—The letters from Mr. J. H. La Trobe and Mr. T. W. Coventry in your issue for Nov. 30 are welcome, because they constitute a sincere attempt to answer the demand for "concrete instances" to show that "the modern series of building by-laws are the impediment to the erection of cheap, &c., houses," and that such by-laws "are a cumbrous means of preventing definite evils." For, as I have pointed out on several occasions, an obligation lies upon all who have any concern for the shortage of houses to endeavour to secure the removal of all potential obstacles to the erection of sound and hygienic dwellings.

It may perhaps be appropriate to examine the points raised in the order given. Mr. La Trobe objects to the by-laws which require that "cesspools are to be built in cement and cemented inside so as to be watertight." May I state that the purpose of this by-law is to prevent sewage soaking into the subsoil and poisoning underground water supplies. In rural districts, where cesspools are usually necessitated owing to the absence of a proper sewerage system, the domestic water supply is mostly derived from wells sunk in the subsoil. If the walls of the cesspool were built "dry," as he suggests, the sewage would pass directly into the underground water, to be drunk again, when enteric fever would inevitably follow. As to his objection to the ventilation of the cesspool by being disconnected or "isolated," as he terms it, by a trap—which is the principle followed in sewered districts to disconnect the sewer air from the house—it would be instructive to learn what practical alternative Mr. La Trobe would suggest?

The Trapping of Bath and Sink Wastes.—The cost of the trap is, under any circumstances, almost negligible. But would Mr. La Trobe, may I ask, advisedly construct a bath without a trap on the waste pipe? The interior of waste pipe invariably become very foul, as everyone knows, with organic waste. In the absence of a trap, the odours from the waste pipe would be blown up the waste pipe into the bathroom.

Ventilation of Bedrooms.—The requirement as to the provision of a ventilating grid near the ceiling of a bedroom is only made when such room has no fireplace. It is a genuine attempt to ensure that some change of air is afforded during sleep, for the windows are in 90 per cent. of cases kept closed. This is an indispensable requirement.

Height of Rooms.—Mr. Coventry's objection to a compulsory minimum of 9 ft. for height of rooms is a fairly common one, and is entitled to support. Most modern by-laws now prescribe a minimum of 8 ft. 6 in. Opinion is, however, considerably divided as to whether a height of 8 ft., as suggested by him and others, is not too low. It may be appropriate to mention here that the Health Officers of the Glasgow Corporation last year conducted investigations to guide them as to whether a height of 8 ft. could not be adopted for the Glasgow building regulations. Samples of air were taken in two bedrooms having a height of 9 ft., and in two bedrooms having a height of 8 ft., and such samples were analysed by the Corporation chemist, who found that the amounts of CO_2 in 10,000 parts of air in the rooms 9 ft. in height were 15.9 CO_2 and 17.9 CO_2 respectively, whilst in the rooms 8 ft. in height, the amounts of CO_2 per 10,000 parts were 20.3 CO_2 and 23.6 CO_2 respectively. The conditions in the two rooms were as analogous as was possible to be obtained. These results prevented the Corporation proceeding with a relaxation of the by-law requirement.

It has been well established that the condition of the air becomes bad more quickly in a low room than in a high one, and that in a high room liberal ventilation can be secured with less discomfort to the occupiers than in a low one. The draught caused by the same amount of ventilation per head is less perceptible—a fact which a former correspondent, Mr. Baillie Scott, appears to have quite ignored. People will tolerate better ventilation if a room is high than if it is low. As that very capable heating and ventilating engineer, Mr. A. H. Barker, B.A., B.Sc., has pointed out, another advantage of a high room consists in the fact that the condition of the air at the top of a room, both in respect of the $C.O_2$ impurity, the humidity and the smell, is always much worse than in the same room at a lower level. A high room, therefore, provides a larger reservoir for the more vitiated portion of the air, and causes the air at a lower level to be purer than in a low room. The higher the room the more distant from the head level is the reservoir of foul air. A still further reason in favour of high rooms is that the temperature gradient in a low room is always greater than in a high one under similar conditions. In other words, the difference in temperature between the head level and foot level is less when the room is high than when it is low, which, from a physiological point of view, is a fact of great importance commonly lost sight of in discussions on ventilation.

Mr. Coventry suggests that division or party walls between houses should be carried up to the ceiling joists and not to the underside of the roof. In other words, he proposes that the space in the roof which is frequently turned to good use for the storage of boxes by occupiers should be common to a number of houses. Apart from the objection to the removal of privacy which would be caused by his proposal, it would be interesting to learn how he proposes to carry his roof purlins and what economy does he think would result in the provision of roof principals as compared with a 9 in. brick wall, not forgetting that the chimney flues have to be carried through the open space? Has he also failed to consider that if any part of this common roof was attacked by fire it would be practically impossible to save the remainder and all the adjacent houses from destruction?

As to his suggestion that walls of larders, coal houses and w.c.'s, when constructed as outbuildings, might be in 4½ in. brickwork in cement, this is already allowed under many modern building by-laws. The saving in cost is, however, very small.

As to the width of streets. In cases where ample space is given by means of gardens or forecourts in front of houses and the proposed new streets are likely to be non-traffic streets, wide roadways are, it is now being generally held, neither necessary nor desirable, and this is a feature in most town-planning schemes. I agree with him that the construction of granite kerbs 12 in. by 6 in. is objectionable. But the latter are not, may I point out, enforceable under by-laws at all, but under Section 150 of the Public Health Act, 1875, and the Private Street Works Act, 1892. With the last paragraph in Mr. Coventry's letter I am also in full agreement. Unless a statute is passed to compel landowners to sell suitable land for housing schemes and at a reasonable rate, the efforts of local authorities and utility societies to carry out housing schemes will frequently be doomed to failure.

It will, I think, be seen on reflection that the points raised by all the correspondents—including Mr. Baillie Scott, who is answered by the above—are somewhat disappointing both in number and also as regards effective support of the allegation that building by-laws unduly increase the cost of building, and I venture to hope that more instances may be forthcoming so that they may be examined and, if substantial, duly used by those who are endeavouring to assist in solving the problem of finding out how the cost of construction of houses may be cheapened.

C. CHAMBERS SMITH.

December 4, 1917.

Housing of the Working Classes.

SIR,—It appears the old unreliable method—open to many kinds of abuse—of submitting designs in competition is about to be perpetuated in the case of this most important national matter, which needs the utmost care and discrimination in the handling. I beg, therefore, to be permitted to mention some of the disadvantages with the hope that the "powers that be" in this area—as, indeed, in all other areas—will adopt safer and more efficient methods.

In preparing mere drawings to be submitted in competition, the author is able to present for examination only a limited view of his ideas and intentions; and can at best—especially under the present most difficult and unprecedented circumstances—furnish only a very approximate estimate of the cost of his scheme; which, in this particular case, where funds of large amount are to be expended, is of vast importance; the utmost economy coupled with efficiency to be observed in all particulars.

It would therefore appear that every design should be absolutely complete; and this can only be attained by the erection of a (limited) number of dwellings, and the actual cost ascertained before the public is committed to an immense outlay which might, without due precautions, be expended on defective and unsuitable examples. The only reliable test of the efficiency or suitability of a building for its purpose is the actual experience of occupation.

I beg to draw particular attention and consideration to the question of cost, because it has happened, when a limit of expenditure has been made (as it usually is, and rightly so) one of the conditions of the competition, that the assessor has selected a design mainly on the grounds that, in his opinion, the design could be carried out for the sum stipulated, the said opinion being found subsequently to be erroneous.

Designs have also been selected which did not provide accommodation stated in the conditions to be essential. When these circumstances occur together, it is not difficult to account for the (apparently) favourable estimate of competitors. Other disadvantages could be mentioned, but those indicated should be sufficient to avert a competition under the usual conditions.

The provision of a (limited) number of dwellings as a test with regard to cost and efficiency need not take up any considerable amount of time—probably not more than is required for completing the usual formalities.

The manner of procedure I suggest, to bring the matter within reasonable limits, is, that every practising architect in each locality or area be furnished with precise particulars of the accommodation required, and the outside limit of expenditure that may be incurred; and every such architect be empowered by the authorities to erect, or get erected (on land provided by the authorities), in the best manner he can devise, one pair of dwellings (or small group of dwellings) of each of the different types contemplated.

All the architects to be remunerated for their services on the same basis, according to a scale of charges agreed upon.

After the dwellings have been completed and occupied for the space of one month (or such other period as may be determined), a thorough examination should be undertaken by a committee of experts (say, the architects themselves) and all improvements which may be found desirable, from the experience of actual occupation, be considered; and the whole experiment in all its aspects be thoroughly taken into account—together with the cost—and an exhaustive report submitted to the authorities. In order, if possible, to make matters more certain of success, I suggest the committee of architects judge *not* its own but the work of some other area.

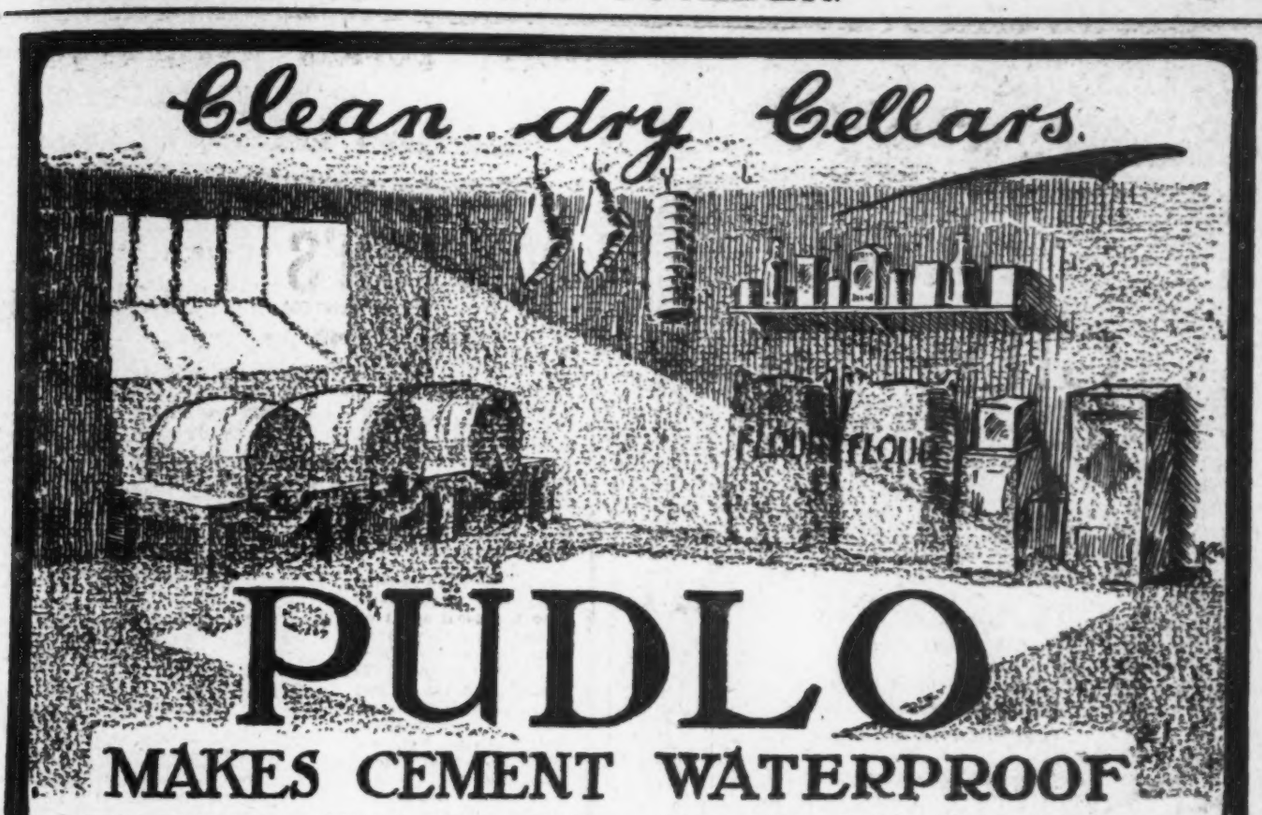
If this or a similar idea was carried out the locality or area would have brought to bear on the matter the ability and industry of the whole of those individuals best qualified to deal with it, and all preference and prejudice would be avoided. The experience gained by those means would be a safe guide for the future.

A thorough reform with regard to public works is urgently needed, because, as matters generally have been arranged in the past, the public lose the benefit of the greater part of the ability existing in its midst; and having trained its men of ability, and borne the cost of training them, the public should see that such ability has work to do, so far as is possible.

A. HALL.

Leicester, November 17.

*** Will the writer of the letter signed "Suum Cinque Tributo" send us his name and address?



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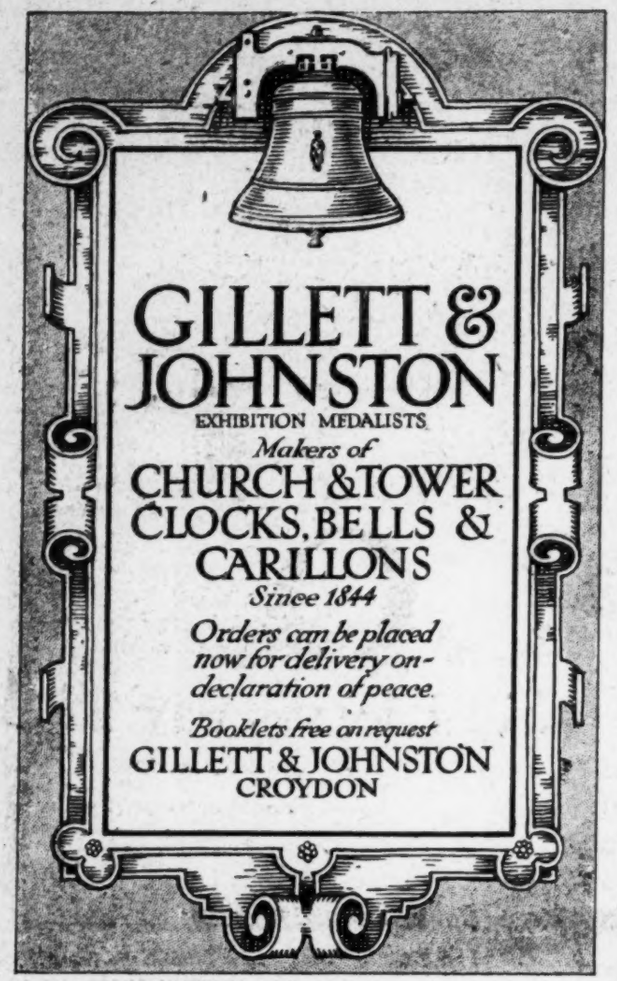

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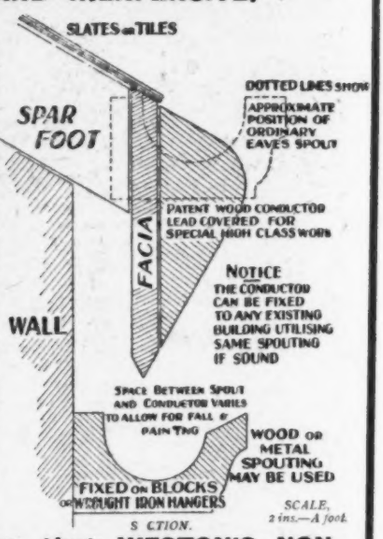
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RECENT EXPERIMENTS IN VENTILATION.

THE following is the conclusion of Mr. A. H. Barker's paper on "Recent Experiments in Ventilation," which was commenced in our issue of November 23 :—

If we are now on the right track we can refer all these questions to one and the same scale. We can say, for instance, that in such and such a corner of a building that is complained of as being draughty, the ventilation is the scale value 37, whereas it ought to be at least 50, we can put our finger on the spot and direct our attention to raising the scale value in that part. A person may even know his own figure of comfort, say, for instance, that he cannot be comfortable unless the scale value is at least 50, but not below. Hitherto, we have attempted to do this solely by reference to dry bulb thermometer, which is known to be most unreliable as an indication. We have regarded heating as an entirely separate matter from ventilation. We now see that it cannot be so regarded, that they are different parts of the same operation.

To reduce all these questions finally to a scale was the object of the experiments of Dr. E. V. Hill, of Chicago, which were reported in a recent number of the *Journal of the American Society of Heating Engineers*. He erected an apparatus in a room which was capable of regulating the temperature, humidity and air movement.

The room contained powerful radiators for maintaining any desired temperature, a vapour pipe for adjusting humidity, and a motor-driven fan for setting up any desired air velocity. The observations made on the subjects consisted simply of suitably preparing them for the test, first placing them in still air in different dry bulb temperatures with varying degrees of humidity, and inviting them to state the degree of comfort they experienced in such terms as "very warm," "too warm," "stuffy," "comfortable," "cool," "too cold," "very cold." Their replies were recorded on a chart which showed the dry bulb temperature as ordinate and the relative humidity as the abscissa. Then these parts of the chart in which the subjects were generally comfortable were marked off by lines, and a diagram produced.

It must be remembered that this diagram applies only to still air. It shows a combination of conditions as to temperature and humidity only, which in still air produce a feeling of comfort. These conditions are found to be fairly well defined. Now consider these results in the light of the loss of heat from the body. That loss takes place partly by convection and partly by evaporation. When the air temperature is increased the loss due to convection decreases. Also as the humidity increases the loss from evaporation decreases.

So we see a probable explanation of the fact that a low air temperature can be compensated for by a high humidity, and *vice versa*. The high humidity in this case reduces the loss of heat from the body by evaporation, while a low air temperature increases the loss by convection, the loss due to the two together being kept constant. Now the wet bulb thermometer, which is an ordinary thermometer covered with a wet fabric, combines in its reading a sort of measure both of temperature and humidity.

It takes up a temperature such that it gains as much heat from air by convection as it loses by evaporation. If we plot on this same comfort diagram lines representing a constant wet bulb temperature, we find that these lines are very nearly parallel to the lines of comfort determined from direct experiment.

We are therefore justified in concluding that the feelings of comfort in still air depend on the wet bulb temperature and not on the dry bulb. In order to show this I have plotted on the diagram various lines of wet bulb temperature, from which it will be seen that the highest line between the "comfortable" zone and the "too warm" zone approximately coincides with about 58 degs. on the wet bulb thermometer, while the lowest one corresponds approximately to about 53 degs. Half way between these two, viz., about 55½ degs. on the wet bulb thermometer, represents an average suitable reading for still air. Hence we say that in still air if the wet bulb thermometer reads somewhere about this value whatever the temperature of the air is, and whatever the degree of humidity, the feeling of the air as regards comfort will be just about right for the average person.

So far, however, the investigation leaves out the vexed question of draughts. It is well known that moving air makes a person feel cold. If, however, the temperature is high, moving air instead of being called "a cold and uncomfortable draught," is regarded as a pleasant breeze or air movement. The explanation is that a temperature which in still air would abstract a normal quantity of heat from the body, in moving air takes away too much, and people therefore complain of draughts.

The experiments were therefore continued in the following way: the floor space in front of the fan was marked off in feet, the fan was set moving and the subject's chair was fixed in various positions so that the average air velocity passing over the subject was varied. At the same time the wet bulb temperature was maintained at different values by suitably controlling the air temperature and the humidity, and the subject's opinion on the conditions was asked and his replies plotted on a curve which shows the relation between the desirable wet bulb temperature and the air motion. The points representing the most comfortable combination of conditions were found to lie on a regular curve. This proves that the desirable wet bulb temperature depends on the amount of air motion.

Just as a high dry bulb temperature can be compensated in still air by a low humidity, the joint effect of the two being measured by the wet bulb temperature, just so a high wet bulb temperature can be compensated by a relatively high air movement, the joint effect of the two being measured by another instrument which will presently be explained.

If, then, we fix or know the air movement we can say at once what is the corresponding suitable value for the wet bulb thermometer reading. Thus, if the movement of the air is about 6 in. per second, we see that a desirable reading for the wet bulb thermometer is about 57 degs; while if the velocity is 18 in. per second the corresponding reading of the wet bulb thermometer is 59 degs. Both these conditions would produce the same loss of heat from the human body subjected to them.

The next step is to measure what is the magnitude of this desirable heat loss, and to evolve some instrument for measuring the same, irrespective of the single values of the three elementary conditions but dependent on their joint effect. In this connection, the work of Dr. Leonard Hill, O. W. Griffiths, and Martin Flack, is of very great importance. A recent paper* read by them before the Royal Society, contains a description of investigations of great value to the ventilating engineer, and should be studied by all who are interested in the subject.

The view set out in this paper is that the rate of cooling of the human body affects the cutaneous nerve endings by determining the difference between the temperature of the surface of the skin and the blood temperature, that a bracing wind cools the skin, tones up the muscles of the body, and impels us to take exercise. That it is the disaffection of monotonous stimulation of the cutaneous nerves on the outside of the body, and not the absorption of poisonous products into the blood, which occasions the discomfort of badly ventilated rooms, and that, therefore, an instrument to measure the rate of cooling at body temperature is the true criterion of adequate ventilation. The important conclusion is also reached that, for satisfactory conditions, a state of constancy or uniformity is essentially undesirable, and that constant change is necessary to produce atmospheric conditions comfortable and healthy to man. If perfectly constant conditions are maintained, the physiological effect is to dull the nerves and to produce a sleepy effect, whereas, a change of condition keeps the nerves lively and produces a feeling of freshness. A movement of air is in its nature variable, and irrespective of all other considerations a certain movement of air is desirable, provided it is accompanied by adequate high wet bulb temperature, so as to avoid an undue feeling of cold.

It is therefore, in the view of Dr. Hill, not desirable to lay down one uniform condition as to heat loss, but to specify that it should vary between the two extremes. He has devised an instrument which he has called a "katathermometer," which measures this rate of cooling by observing the time taken by the instrument to fall between two definite temperatures. He has carefully investigated the reading under different atmospheric conditions. The conclusion reached is that for comfort the cooling power of the atmosphere as determined by the wet katathermometer should be between 20 and 30 milli-calories per second per square centimetre. The actual figure depends on the prevailing climatic conditions, for this determines the standard to which our bodies are tuned.

It is impossible even to indicate the general character of this important investigation in the present paper. We have now to enquire as to the practical means at our disposal for producing such an air movement as physiological investigation has shown to be desirable. In connection with this question, it is important to know the effect of different positions of the opening into and out of the room in producing such a movement. This point has not escaped the attention of the very strong New York State Commission on Ventilation. This Commission has investigated the effect on the air movement in a room of different positions of openings. Observations were made of temperatures in different parts of the room, humidity of the air, amount of air supply, carbon-di-oxide analysis, &c. It was shown that both heat and expired air vary proportionately with a person's weight, and that in calculating the occupation of a room, square feet of floor space for 100 lb. of flesh is a much more instructive figure than square feet of floor space per person.

A survey of the air currents in the various rooms has been made, and diagrams similar to those which are now on the screen prepared from these observations. The magnitude of the current is indicated by the depth of the shading and its direction is shown by the arrow. It will be understood how immensely complicated these observations are. The inlets in a room should be so designed as to maintain a subtle air movement all over the space; this subject, however, is too wide to be adequately treated in the course of a single lecture.

It will be at once evident how seriously all these considerations complicate the already difficult question of ventilation. If we could take the results of these experiments at their face value, we might be entitled to conclude that a very large reduction in the amount of air now thought necessary for adequate ventilation might be made; but responsible physiologists are reluctant to form this conclusion, feeling, as they probably do, that the experiments are still too much in the air, and that reliable conclusions can only be formed as the result of very much more experience than has been obtained up to the present time.

If we are to design our ventilating plant solely with the view to comfort, we are on much surer ground than we can be for many years if we consider the ultimate health as the object to be obtained. It may be doubted whether we shall ever know certainly enough on this subject to enable us to be quite sure that we are on the right lines in this regard. If we are entitled to assume, however, that what is to be sought for is the means of controlling accurately the heat losses from the bodies of the subjects, we have at least something definite to work upon, and this alone is an enormous step in advance, for hitherto we have been working almost in the dark with the aid of crude rules of thumb only.

The general question of the practical means for controlling the air movement in all parts

* *Phil. Trans.* Series 13, Vol. 207, p. 183.

of a room were discussed by myself in a public lecture at the University College, in 1914, and reproduced in *Engineering*, of December 4 of that year. The conclusion arrived at was that modern theories of ventilation, which at first sight appear to render possible a reduction in the cost of ventilating a room, in reality have a very marked tendency in the opposite direction. They increase to a very large extent the practical difficulties, and the amount and extent of the plant required, and increase also the cost of upkeep. If they are to be literally carried into practice, they will call for something like a transformation in the methods of building, and will certainly be regarded with acute disfavour by every architect who is interested in the interior appearance of a large building.

I have only been able to touch in a somewhat sketchy manner on the broad general results of a very few of the most important of recent investigations, but I trust that enough has been said to show what a vast unexplored field still awaits the investigator, and more than all that the practical methods of applying the results hitherto discussed to practice should form the earnest study of all who have to do with building construction.

LAW REPORTS.

Contracts and the War.

Metropolitan Water Board *v.* Dick, Kerr & Co., Ltd.

Water Board's Appeal Dismissed.

In the House of Lords on November 26, consisting of the Lord Chancellor (Lord Finlay) and Lords Dunedin, Atkinson and Parmoor, a considered judgment was delivered dismissing the appeal of the Metropolitan Water Board from an Order of the Court of Appeal whereby a judgment entered for them at the trial before Mr. Justice Bray was reversed and judgment entered for the now respondents Messrs. Dick, Kerr & Co., Ltd.

The case for the Water Board was argued by Mr. P. O. Laurence, K.C., and Mr. Holman Gregory, K.C. (Mr. Joshua Goodland with them), and at the close of the appellants' case judgment was reserved without Mr. Upjohn, K.C., Hon. Frank Russell, K.C., Sir Ernest Pollock, K.C., and Mr. Douglas Hogg being called upon for the respondent company.

The Lord Chancellor, in the course of his judgment, said the question in this case is whether a contract for the construction of reservoirs and water works between the appellants and the respondents can be treated by the respondents as at an end in consequence of an order of the Minister of Munitions that work under the contract should cease. The action was begun by the Water Board by writ, dated May 19, 1916, against the contractors, and by their statement of claim they sought a declaration that the contract is still subsisting as a binding contract, and had not been determined. The defence alleges that notice from the Minister of Munitions, dated February 21, 1916, was given in exercise of the powers conferred by the Defence of the Realm Acts and the Regulations and Orders made thereunder, and that the notice required the contractors to cease work on their contract, and that they ceased work accordingly. The defence went on to allege that thereby the contract ceased to be binding.

The case was tried before Mr. Justice Bray, who gave judgment for the Water Board, holding that the notice should have been dealt with under the terms of the contract by an extension of time for the completion of the contract, and that the contract was still in existence. On appeal that decision was reversed. The present appeal is that the decision of Mr. Justice Bray should be restored.

The contract is one for the construction of extensive reservoirs and other works near Staines, the respondents' tender having been accepted by the appellants on July 24, 1914. The decision of Justice Bray in favour of the appellants was rested by him upon clause 32 of the contract, which provided that the works should be completed within six years from the date of the Engineer's written order to commence the work, and then went on to provide as follows:—

> Provided always that, if by reason of . . . any difficulties, impediments, obstructions, oppositions, doubts, disputes or differences whatsoever and howsoever occasioned, the contractor shall, in the opinion of the Engineer (whose decision shall be final), have been unduly delayed or impeded in the completion of this contract, it shall be lawful for the Engineer, if he shall so think fit, to grant from time to time, and at any time or times by writing under his hand, such extension of time either prospectively or restrospectively and to assign such other day or days for or as for completion, as to him may seem reasonable, without thereby prejudicing or in any manner affecting the validity of the contract or the adequacy of the contract price or the adequacy of the terms or prices mentioned in the third schedule . . ."

Mr. Justice Bray held that this condition applied, and that the prohibition by the Minister of Munitions should have been dealt with by an extension of time under it. The Court of Appeal on the other hand held that the prohibition issued in consequence of the war rendered the prosecution of the works illegal for a period of indefinite duration, and must be treated as having put an end to the contract.

The date of commencement of the works was fixed by the engineer as being the 16th August, 1914. The war broke out on the 4th August, but the works under the contract proceeded. On the 10th May, 1915, the nature of the works was varied, and the amount of payment increased by a supplemental contract of that date. In spite of difficulties occasioned by scarcity of labour and the character of the ground on which the reservoir was to be constructed, the works went on, and a substantial amount of work had been done, when, on February 21st, 1916, the work was stopped by the Minister of Munitions, and the plant sold under his direction.

In my opinion the decision of the Court of Appeal was right.

It was admitted that the prosecution of the works in consequence of the action by the Minister of Munitions became on February 21st, 1916, illegal, and remained so at the present time. This was not a case of a short and temporary stoppage, but had all the appearance of being one to last as long as the war itself. Clause 32 provides for cases in which the contractor has in the opinion of the engineer been unduly delayed or impeded in the completion of his contract by any of the causes therein enumerated or by any other causes, so that an extension of time was reasonable. But the clause did not cover the case in which the interruption is of such a character and duration as vitally and fundamentally to change the conditions of the contract, and which could not possibly have been in the contemplation of the parties when it was made.

It was not disputed by the appellants that in the case of a commercial contract, as for the sale of goods or agency, such a prohibition would have brought it to an end. It was sought to distinguish this case on the ground that the contract was for the construction of works of a permanent character, which would last for a very long time, and that a delay even of years might be disregarded. Such a contention ignores the fact that though the works when constructed may last for centuries, the process of construction was to last for six years only. It is obvious that the whole character of such a contract for construction may be revolutionised by indefinite delay, such as that occasioned in the present case in consequence of the prohibition. The effect of the prohibition may well be that the works cannot be resumed until at all events the greater part of the six years has expired, and by that time all conditions as regards labour and materials may be absolutely different. This, in the words of Mr. Justice Rowlatt in Distington Hermatic Iron Co. *v.* Possehl (1916 1. K.B. 811) would be "not to maintain the original contract, but to substitute a different contract for it."

The appeal, in my opinion, fails.

Lord Dunedin agreed. He thought that the general law on the subject of what supervening event would excuse the performance of a contract had been so recently dealt with at length in the judgments of this House in the Horlock *v.* Beal and the Tamplin Steamship cases, that it would be useless again to review the past authorities in any detail. His lordship therefore proceeded to review those two cases at some length, and summed up the conclusion he had come to upon those authorities thus: "On the whole matter I think that the action of the Government, which is forced on the contractor as a *vis major*, has by its consequences made the contract, if resumed, a work under different conditions from those of the work when interrupted. I have already pointed out the effect as to the plant, and the contract being a measure and value contract the whole range of prices might be different. It would, in my judgment, if resumed, amount to a new contract, and as the contractors are only bound to carry out the old contract, and cannot do so owing to the supervenient legislation, they are entitled to succeed in their defence to this action.

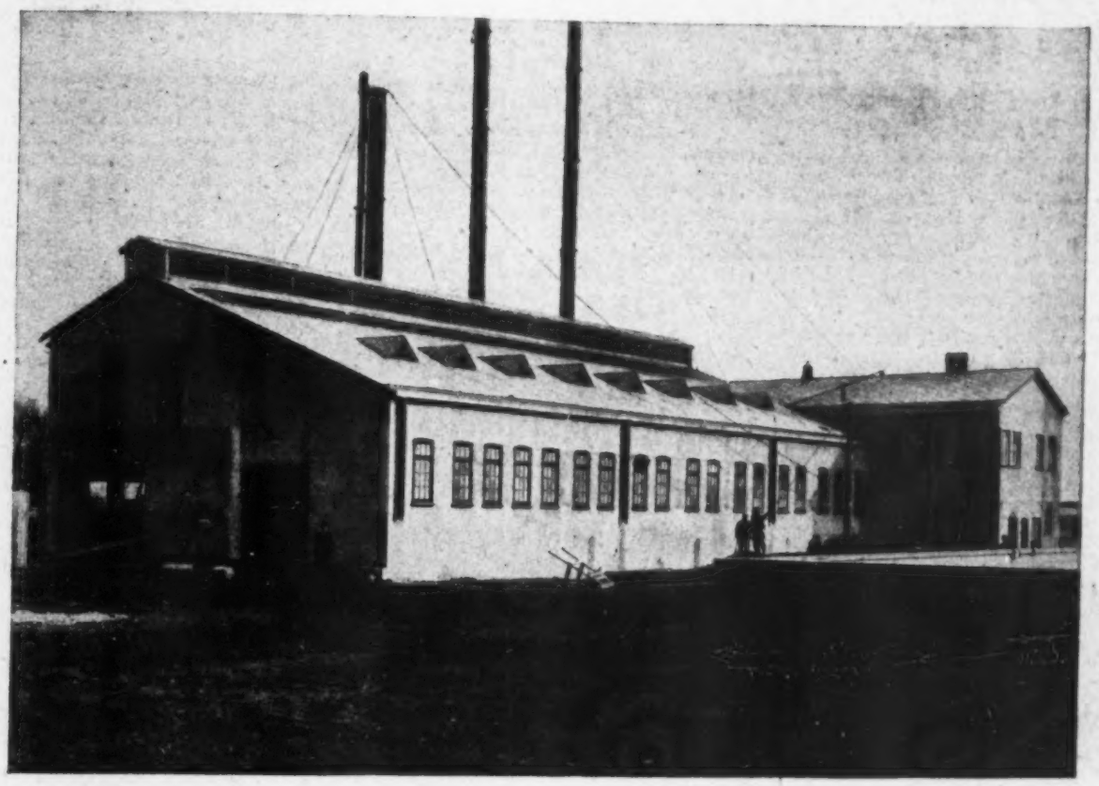
Lord Atkinson's opinion was based on the same lines as Lord Dunedin decided in favour of the contractors.

Lord Parmoor rested his concurring judgment more on contract law, and pointed out that the decision in each case depended on the ascertainment of the true meaning of the bargain between the parties. "If the parties," he said, "have provided by apt words in the contracts for their mutual rights and liabilities, in the event of the contract works being stopped or indefinitely hindered by the operation of a subsequent law, and such provision is not contrary to public policy, then it would be the duty of any Court to give effect to such provision." That statement of the principle to be applied led his lordship to say that the judgment of Mr. Justice Bray largely depended, in his opinion, on what the parties had themselves expressly provided to meet the contingency which had occurred by clause 32 of the contract. For himself, he did not accept the learned judge's construction of that clause. The contract was one substantially in common form where works of this character were to be carried out in a fixed time, subject to payment on the basis of measure and value. It was usual in such a contract to authorise the engineer, at his discretion in certain events, to grant by writing under his hand such extension of time as to him might seem reasonable, without thereby prejudicing or in any way affecting the validity of the contract. But here the cause for which the time was to be extended, if the appellants' contention was accepted, was one that did not come within the scope of the engineer's authority. It arose from a cause which was not provided for by the contract, and could not reasonably be supposed to have been in the contemplation of the parties when the contract was made. Itwas, from its very character, one that would make an extension of the time to complete not an extension of the contract at all under which alone the contractors were bound, but the forcing upon them of a new contract on the old terms, although the circumstances in the labour market had probably entirely changed, and it would be wholly unreasonable to keep them to their original bargain.

The appeal was accordingly dismissed with the usual order as to costs.

The Halifax Disaster.

In reference to the appalling disaster at Halifax, Nova Scotia, we read that guests in the hotels escaped; and in the main portion of the city, where the buildings are of stone and concrete, little damage has been done beyond windows. In the west and north-west quarters the walls of many houses have been blown to atoms, but the most complete destruction is in the north end of the city, known as Richmond. There street after street is in ruins. Substantial buildings have been reduced to smouldering heaps of timber, and ordinary frame houses shattered and flattened.



REINFORCED CONCRETE

A New Wall

A new system of reinforced concrete walls has recently been patented by us, the chief features of which are as follows:—

(1) The displacement of the reinforcing rods is impossible.

(2) The utmost efficiency is derived from the steel in tension and the concrete in compression.

(3) The wall is rendered both sides.

(4) The wall is weatherproof and waterproof (see smaller illustration).

(5) No centering is necessary.

(6) The saving of space is considerable.

Full particulars of this system, which is of the greatest interest to all Architects, Builders, etc., will be sent on application to

Somerville's

D. G. SOMERVILLE & CO., LTD.

120-122, Victoria Street,
Westminster, London, S.W. 1.

THE BUILDING TRADE.

SCIENCE USEFUL FOR THE MASON.

THERE are many applications of science to the trade of the mason. True, the man who is content to spend his days in the actual cutting or setting of stone can get along very well without the assistance of science, but he who aspires to set out work and understand the nature and quality of his materials will find some knowledge of geometry and geology absolutely essential.

We propose in this article to indicate a few of the many uses of geometry, mensuration, and mechanics in the mason's work. The setting-out of angles may be taken as a simple example. Thus, a right angle may always be obtained by forming a triangle with its sides in the proportion of 3, 4, 5, when the sides of lengths 3 and 4 will form a right angle at their junction. (See Fig. 1.)

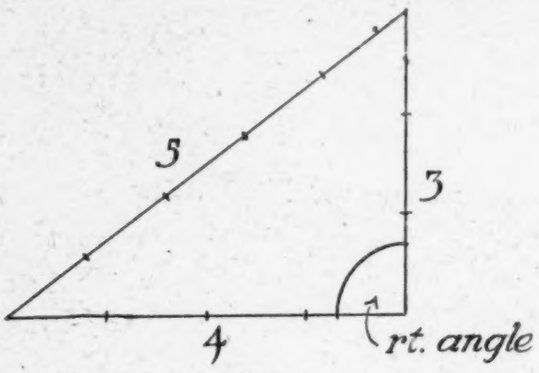


FIG. 1.

Alternatively, if two triangles with two sides of equal length (isosceles triangles) be formed on either side of a line AB, Fig. 2., at the centre of which the right angle is required, a line joining the points of these two triangles will form four right angles with the line first drawn.

Geometrical projection is involved in the ordinary reading of plans, which enable the form of a solid object to be interpreted and measured from drawings. Thus, a cone is identifiable from its elevation, which is a triangle, and its plan, which is a circle; and a sphere by elevation and plan, which are both circles. These are merely instances of simple forms, but show the necessity of a knowledge of this subject. In the case of winding surfaces what is known as their development is often required before their material creation can be effected. The simplest method of understanding development is to regard the solid as covered with a layer of paper which can be removed and which, when spread out flat, forms the development, which process is, of course, only approximately possible in the case of certain curved surfaces. The development of the curved surface of a cone, for example, will be found to be a sector (that is, a piece bounded by radii and circumference) of a circle. A practical instance of the application of cone projection and development occurs in the case of curved wing walls, built, as is usual, on the batter for retaining purposes, the faces of such walls being parts of the internal surfaces of cones. In certain cases, as in cutting stones for a dome, it is impossible to apply templates before working preliminary faces in the stone, known as surfaces of operation. This necessity, which arises in dealing with all spherical or winding faces, involves the initial production of surfaces which are flat or curve only in one direction, on which templates can be wholly laid, after which these are reduced to their final form.

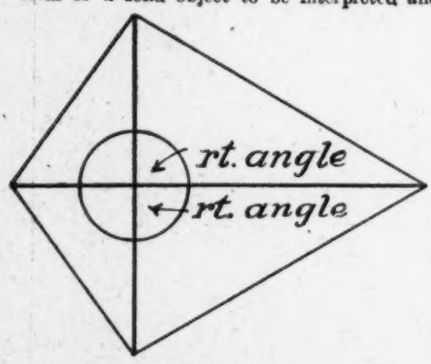


FIG. 2.

A branch of mason's work in which a knowledge of geometry is very useful is that concerned with vaulting. Apart from Gothic work, the usual problem is to cover passages of different spans intersecting at right angles with vaults having their springings and crowns respectively at the same heights. The curve of one of the vaults is first decided upon. Let us assume that it is a semi-cylinder (Fig. 3) between the two walls A and B, and let the line joining these walls represent the springing, and the semi-circle on its left the curve of the vault. A diagonal line (B–D) is then drawn across the intersection of the vaults. Now, if any number of points be marked off on the springing line, and lines be drawn through them at right angles to meet both the semi-circle and the diagonal line, from which again a number of lines are drawn at right angles to the first set, they can be used for setting out the other vault by drawing a springing line across the larger vault (B—C), and marking off above it angles equal to the lengths of the corresponding lines from springing to semi-circle of the smaller vault, as shown in the figure—the curve required being a line joining the termination of such lines. Similarly, the groin or intersection line of the two vaults, which is necessary for working the groin stones, may be found by setting up similar lines on and vertical to the diagonal, of equal length respectively to those already drawn to the vaulted surfaces, as also shown in the figure. This method of projection of course, applies to any curves selected; thus the larger vault may be cylindrical, when the smaller one will be found to be an egg-shaped ellipse.

To turn to a few applications of mechanics to mason's work, specific gravity is useful as an indication of strength. Specific gravity, as explained in a previous article, is relative heaviness, water being taken as the standard. Most stones are about 2½ times as heavy as water, bulk for bulk; but some, such as granite, have a greater specific gravity. Very light stones are generally porous, and hence are not so strong as those of greater relative weight. Even if strong enough, the porosity of stones is important, owing to the possible penetrating of damp through walls. No very scientific test for porosity has been devised, and probably the best is the practical one of comparing the amount of water which will drip through slabs of stone of equal size and thickness in a given time. In such a comparative test, the head of water and its temperature should be the same in both cases.

Crushing tests are perhaps the most usual which are made on stones, but the direct value of such tests is small, because all stones which could be used for constructional purposes are quite strong enough for any loads they will be called upon to bear; but such tests give some indication of the power of the particles to adhere, and thus form some indication of weathering properties. Crushing tests must be made on specimens of the same size, to be of any comparative value; and tests on small specimens are not of great value as an indication of the actual strength of masonry in bulk. As, however, the value of such tests is mostly comparative, this is not of much moment. There are many other applications of mechanical principles to mason's work, but they are not of such importance as to justify inclusion in such an article as is here intended.

MAXIMUM TIMBER PRICES.

The Board of Trade announce two important Orders under the Defence of the Realm Acts. The first, as published in the *London Gazette*, fixes maximum prices for home-grown timber at all stages from the standing tree to the plank; and the second prohibits the export of native timber from Ireland without a permit, for which application must be made to the Assistant Controller of Timber Supplies (Ireland), 6, Hume-street, Dublin.

It is emphasized that, as regards standing timber, the maximum prices are intended to apply to timber of the best quality in the most accessible positions. Prices for other timber should be based on the maximum rates, having regard to the usual factors of quality, accessibility, haulage, and other conditions.

The maximum prices per cubic foot fixed by the Order for standing trees are: Larch, 1s. 4d.; Scots pine and Douglas fir, 11d.; spruce and other firs, 10d.; ash selected for aeroplane purposes, 5s.; ash for other purposes, 3s.; ash of inferior descriptions, 1s. 6d.; oak, well-grown, selected trees, 3s. 3d.; oak, well-grown, whole parcels, 2s. 3d.; oak, of inferior descriptions, 1s. 3d.; sycamore and hornbeam, 2s.; Spanish chestnut, 1s.; selected trees, 2s.; beech, 1s. 6d.; poplar, alder and lime, 1s. 3d.; elm, 1s.; and other common hard woods, 1s. For timber felled and trimmed, lying in the wood, these prices may be increased up to 10 per cent.

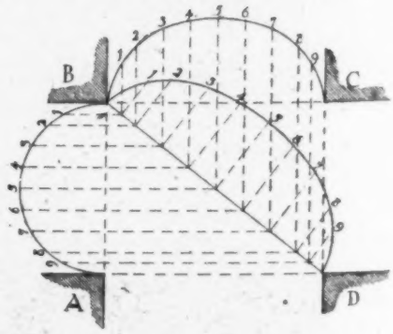


FIG. 3.

The Order also fixes maximum prices for timber, in the round, sawn, or converted, and cancels the Home-grown Timber Prices (Great Britain) Order of July 4 last, which dealt only with certain sizes of converted home-grown soft wood.

Competitions, Contracts, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number. Contracts, vi; Tenders, —; Public Appointments, xxii; Auction Sales, xxiv, Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

BUILDING AND PAINTING.

DECEMBER 14.—**Bradford.**—PAINTING, &C.—Bradford E.C. invites tenders for the painting, colouring, &c., required to be done at various schools. Specification, &c., at the City Architect's Office, Town Hall, Bradford.

NO DATE.—**Northallerton.**—BRIDGE WIDENING.—North Riding of Yorkshire C. C. invite tenders for the works in connection with the widening of Leadmill Beck Bridge (Stone). Plans, &c., at the County Surveyor's Office, County Hall, Northallerton. Mr. E. R. Lee, Acting County Surveyor.

FURNITURE, MATERIALS, etc.

DECEMBER 19.—**Belfast.**—PAINTS, &C.—Supply to the Belfast City and District Water Commissioners, for the year 1918, of paints, oils, &c., timber, Portland cement, &c. Forms of Mr. R. Hamilton, Secretary, Water Office, Belfast.

DECEMBER 19.—**Portsmouth.**—PAINTS, TIMBER, &C.—Supply to the Guardians of paints, timber, &c. Forms at the Guardians' Offices, St. Michael's-road, Portsmouth.

DECEMBER 31.—**Croydon.**—PAINT, &C.—Supply to the Guardians for the three months ending March 30, 1918, of paint and painter's materials, &c. Forms, at the Union Offices, Mayday-road, Thornton Heath.

ROAD, SANITARY, AND WATER WORKS.

DECEMBER 14.—**Reading.**—ROAD MATERIALS.—Supply to the Berkshire C.C. of broken road materials, gravel and sand for the 12 months ending March 31, 1919. Forms of Mr. A. Langston Yockney, Acting County Surveyor, Shire Hall, by December 14, 1917. Surveyor's Department, Shire Hall, Reading.

DECEMBER 15.—**Maidstone.**—ROADSTONE, &C.—Supply to the Kent C.C. of broken roadstone and tarred macadam. Specification, &c., of the County Surveyor, Maidstone.

DECEMBER 22.—**Wells (Somerset).**—SURFACE TARRING.—Somerset C.C. Main Roads Sub-Committee invite tenders for surface tarring on main roads in various parts of the county during the coming summer. Forms of Mr. Gordon R. Folland, Acting County Surveyor, County Surveyor's Office, Wells, Somerset.

DECEMBER 27.—**Bexley.**—TAR, &C.—Supply to the U.D.C. of tar, highway materials, &c., for the year ending March 31, 1919. Specifications, &c., of Mr. W. T. Howse, Surveyor to the Council, Council Offices, Bexley Heath, Kent.

Public Appointments.

*NO DATE.—**Macclesfield.**—The Governor of the Macclesfield Certified Industrial School requires a Carpenter-Woodwork Master. Apply, with two copies of testimonials, &c., to the Governor as above.

A Government Labour Committee.

The War Cabinet have appointed a Committee to deal with questions of wages (including the interpretation of the Orders relating to the increase of 12½ per cent. recently granted to plain-time workers in certain industries) and to co-ordinate the settlement of labour questions affecting Government departments. The Committee, which will be known as the "Government Labour Committee," will consist of Mr. G. N. Barnes, M.P. (chairman), Sir Auckland Geddes, K.C.B., M.P. (vice-chairman), Sir George Askwith, K.C.B., K.C., Mr. Guy Calthrop Sir Lyndon Macassey, K.C.B., Mr. I. H. Mitchell, and Mr. U. Wolff. The Committee may confer with a Consultative Committee consisting of representatives of the principal Government departments concerned with industrial questions. It should be understood that the functions of the Government Labour Committee will not supersede those of the arbitration tribunals set up under the Munitions of War Acts by the Ministry of Labour. Pending the appointment of a secretary all communications on matters affecting the committee should continue to be addressed to the Ministry of Labour, Montagu House, London, S.W. 1.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	11	11	11	11	11	10½	10	8	8	8
Accrington	11½	11½	11	9½	9	10	9½	7	7	7
Altrincham	11	1/1	1/-	1/-	9	1/1	1/-	9	9	9
Ashton-under-Lyne	1/1	1/1	1/0½	1/-	1/-	1/-	1/-	8½	9	9½
Barnsley	10½	11½	11½	10½	9	1/-	9½	8½	8½	8½
Barrow-in-Furness	1/1½	1/1	1/1	1/0½	1/0½	1/0½	1/0½	10	10	10
Barry	1/-	1/-	1/-	1/-	—	1/-	11	9	9	9
Bath	10½	10½	10½	10	10	10½	9½	8	8	8
Bedford	11	11	11	11	11	11	9	9	9	9½
Birkenhead	1/2	1/2	1/2	1/1	1/1	1/2	1/1	10½	10½	10½
Birmingham	1/0½§	1/0½§	1/0½§	1/0½§	1/0½§	1/0½§	11§	9½§	9½§	9½§
Bishop Auckland	11	11	11	11	1/-	11	10	8	8	8½
Blackburn	11½	1/0½	1/-	11	11½	1/-	10½	8½	9	9
Blackpool	1/-	11	11	9½	8½	9½	10½	6	6	6
Bolton	1/1	1/2	1/1	11½	11½	1/-	1/0	7½	7½	9
Bournemouth	11	11	11	11	11	11	10½	8½	8½	8½
Bradford	1/1½	1/1½	1/1	1/-	1/0½	10†	10½†	11	11	11
Bridgwater	8½	8½	8½	8½	8½	8	7½	6	6	6
Brighton	10½	10½	10½	10½	10½	10½	9	8	8	8
Bristol	1/0½	1/0½	1/0½	1/0½	—	1/0½	11½	10	10	10
Burnley	11½	11½	11½	10½	9	10½	10½	7	7½	7½
Burton-on-Trent	11	11	11	11	11	11	10½	8½	8½	8½
Bury	1/-	1/-	1/1	11	11	1/0½	11½	8	8½	8½
Cambridge	11	10½	10½	10½	11	9	7½	7½	7½	7½
Cardiff	1/-	1/-	1/-	1/-	1/-	1/-	11	9	9	9
Chatham	10	10	10	10	10	10	8½	7	7	7
Chelmsford	8	7½	8½	9	—	7½	6½	5	5	6½
Cheltenham	9½	9½	9½	9½	—	9½	9½	6½*	6½*	6½
Chester	10½	11	11	11	11	11	10	6½	7½	7½
Chesterfield	1/-	1/-	11	11	10	11	10½	8–8½	8–8½	8–8½
Colchester	8	8½	8½	9	8	9	6	5½	5½	5½
Coventry	1/1	1/1	1/1	1/1	1/1	1/1	1/-	10½	10½	11
Crewe	9	9½	9½	10½	10	9½	10	7	7	7½
Darlington	11½	11½	11½	11½	10	9½	9	8½	8½	8½
Derby	1/-	1/-	1/-	1/-	1/-	11½	10½	9	9	9½
Doncaster	10½	10½	10½	10½	10½	10	9½	9½	9½	9½
Dudley	9½	1/-	1/-	10	10	9½	8½	9	9	9½
Durham	10½	10½	10½	10½	10½	9½	9	7½	7½	7½
East Glam. and Mon. Valleys	10	10	10	10	—	—	9	7	7	7
Exeter	10	10	10	10	10	9½	9	8	8	8
Folkestone	8½	9	9	9½	8½	9	8	7	7	7
Gloucester	10½	11	11	10½	10½	11	10	8½	8½	8½
Grantham	9½	10	9½	9½	10	8½	8	8	7½	8
Grays	—	1/-	1/-	—	—	1/-	10½	—	10	10
Grimsby	11½	11½	11½	11½	11	10	10	10	10	10
Great Yarmouth	10	10	10	10	10	10	8½	7	7	7
Halifax	1/-	1/-	1/-	9	9	11	10	9½	9½	9½
Harrogate	10½	9½	11	9	8	1/-	9½	7½	7½	7½
Hartlepools	1/0½	1/1	1/1	1/1	1/-	10½	9	10	10	10½
Hastings	10	10	10	10	10	10	8½	7	7	7
Hereford	10	10	10	10	10	10	9	7½	7½	7½
Huddersfield	1/-	11	1/-	11½	1/-	1/-	11	9½	9½	9½
Hull	1/1	1/1	1/1	1/1	1/1	1/-	9	11	11	11
Ipswich	10½	10½	10½	11	10½	11	9	8	8	8
Lancaster	10½	10½	11	10	9½	10	9	6	6½	7½
Leamington Spa	10½	10½	10½	10½	10	10½	9½	7½	7½	7½
Leeds	1/1½	1/1½	1/1	1/1	1/1	1/2	11½	10½	10½	11
Leicester	1/0½	1/0½	1/0½	1/0½	1/1	1/0½	11	10	10	10½
Lincoln	10½	1/-	10½	10½	10½	10½	10	9½	9½	9½
Liverpool	1/2	1/2	1/2	1/2	1/1½	1/2	1/0½	10½	10½	10½
Llanelly	1/-	1/-	1/-	1/-	1/-	1/3	11	9½	9½	9½
London	1/1½¶	1/1½¶	1/1½¶	1/1½¶	—¶	1/2¶	11¶	10¶	10¶	10¶
Loughborough	10	10	10½	10	10	10	9	8½	8½	9½
Luton	10½	10½	10½	11½	10½	11	9½	8	8½	9
Maidstone	10	10	10	10	10	10	9	7	7	7
Manchester	1/2	1/2	1/2	1/2	1/1	1/2	1/-	10	10½	10½
Mansfield	11	11	10½	11	11	11½	11	8	8	8
Merthyr Tydfil	11	11	11	11	11	11	10	8½	8½	8½
Middlesbrough	1/0½	1/1	1/1	1/1	1/-	10½	9	10	10	10½
Newcastle-on-Tyne	1/1½	1/1½	1/1½	1/1½	1/-	10½	11	10½	10½	10½
Newport, Mon.	11½	11½	11½	11½	11½	1/0½	10½	8½	8½	8½
Northampton	11	11	11	11	11	11	10	8½	8½	8½
Norwich	10½	10½	10½	10½	10½	10½	9½	8	8	8
Nottingham	1/1	1/1	1/1	1/1	1/0½	1/1½	11½	10½	10½	11
Oldham	1/1	1/-	1/1	1/-	11	11½	1/-	8½	8½	9
Oxford	11	10½	10½	10½	10½	10½	9½	8	8	8
Plymouth	11*	11*	11*	11*	10*	10*	8½*	8½	8½	8½
Pontypridd	11	11	11	11	11	11	10	8	8	8
Portsmouth	11½	11½	11½	11½	11½	10½	9½	9	9	9
Preston	10½	1/-	11½	1/-	11	1/-	11½	8½*	8½*	8½*
Reading	10½	10½	10½	11	10½	10½	9	7½*	7½*	7½*
Rochdale	1/-	1/-	1/1	11½	10½	1/0½	1/-	9	9	9½
Rochester	10	10	10	10	10	10	8½	7	7	7
Rugby	11	11	11	11½	1/-	11	10	8	8	8
St. Albans	10	10	10	10	10	10	9	8	8	8½
St. Helen's	1/-	1/-	1/-	1/-	1/-	11½	10½	7	7½	8
Scarborough	9½	9½	9	9½	9½	9½	8½	7½	7½	7½
Sheffield	1/1½	1/1½	1/1½	1/1	1/1	1/1	1/-	10½	10½	10½
Shrewsbury	8½	9½	9½	9½	—	8½	7	8½	8½	8½
Southampton	11½	11½	11½	11½	11½	11½	10½	8½	8½	8½
Southend-on-Sea	10	10	10	10	[illegible]cework	10	9	8	8	8
Southport	11½	11	11½	11	11	11	11	7	7½	7½
South Shields	1/1½	1/1½	1/1½	1/1½	1/-	10½*	11	10½	10½	10½
Stockport	1/2	1/1½	1/1½	11½	10½	1/-	11½	9½	10	10
Stockton-on-Tees	1/0½	1/1	1/1	1/1	1/-	10½	10½	10	10	10½
Stoke-on-Trent	11½	11½	11½	11½	—	10½	10½	8½	8½	8½
Stroud	9½	9½	9½	9½	9½	9½	9	7½	7½	7½
Sunderland	1/1	1/1½	1/1	1/1	1/1½	9½	11	10	10	10
Swansea	1/-	1/-	1/-	1/-	1/-	1/2	11½	9	9	9
Taunton	9	9	9	9	9	9	8	6½	6½	6½
Torquay	10	10	10	10	10	10	10	8	8	8
Wakefield	10	11	10½	9½	8½	1/1	10	9½	9½	9½
Walsall	11½	11	11	11	11	11	9½	8½	8½	8½
Warrington	11½	1/0½	1/0½	1/1	1/1	1/0½	11½	8½	9	9
West Bromwich	11	11	10½	10½	—	11½	10	8	8	8
Wigan	1/0½	1/1	1/0½	1/-	11½	1/0½	11½	10	10	11½
Windsor	10	10	10	10	10	10	8½	7	7	7
Wolverhampton	1/-	1/-	1/-	11	11	1/-	10½	9	9	9
Worcester	9½	10	10	10	10	10	8½	7½	7½	7½
York	9½	9½	9½	10½	10	10½	8½	8½	8½	8½

The Masons' rate given is for bankers; fixers usually ½d. per hour extra.
* War bonus of 2s. per week granted. † War bonus of 3s. per week granted. ‡ War bonus of 2s. 6d. per week granted.
§ War bonus of 4s. per week granted. ¶ 1d. per hour extra for men engaged on munition work.
¶ 1½d. per hour extra for men engaged on munition work.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

AMERSHAM.—The R.D.C. has approved plans for a cow-house at Witheridge, Penn, submitted by Mr. Gardiner; and for a house at Misbourne, Chalfont St. Giles, submitted by Messrs. Rust & Ratcliffe.

BLOXWICH.—The Birmingham Canal Co. has informed the Walsall Corporation that it has decided to reconstruct Little Bloxwich bridge and Teece's bridge.

BRADFORD.—The borough engineer has estimated the cost of replacing the corrugated iron fencing on the Frizinghall Sewage Works at £420, and the Committee has ordered that the fence be repaired.

CAMBERWELL.—Plans for drainage passed:—At 6, Russell-road, for Mr. Watts; at 65, Ivanhoe-road, for Mr. Donovan; at 86, Peckham-road, for Mr. Farley; at 58, Avondale-road, for Mr. Newton.

CARDIFF.—Plans passed by T.C.:—Garage, Woodville-road East, for the British Co., Ltd.; lavatory, St. James' Church, Newport-road, for the Rev. Canon Henderson; motor shed, 6, Llanedeyrn-road, for Mr. D. Smith Williams; shed, Wyndham-place, for Mr. John Pugh; roof over Rope-walk, Gas Works-lane, for the Cardiff Rope Works and Brattice Cloth Co. (1900), Ltd.; alterations, 22 and 23 Angelina-street, for Mr. P. Soares; back entrance, 44, Cosmeston-street, for Mr. John G. Rodd; bathroom, 219, Bute-street, for Mr. A. Farrah; additions to gardener's cottage, Birchwood Grange, for Sir Wm. James Thomas; extension of hall, Railway Hotel, Saunders-road, for Mrs. M. A. Bryan.

CHESTERFIELD.—It is reported that a Sheffield firm has offered to purchase 1¼ acres of land in Infirmary-road for the erection of an engineering works.

DEWSBURY.—Plans passed by T.C.:—Executors of Ned Ramsden, alterations to workshop, Albion-street; James Smith & Sons, lavatories and staircase, Calder Wharf Mills; Dewsbury Dyeing and Carbonising Co., rebuilding warehouse, Carlton-road; Messrs. Clayton & Preston, shed, Watergate; Messrs. S. Lyles & Sons, extension of shed, Jilling Ing Mills; Messrs. Ashworth, Son & Co., engine room and gas house, Midland Engineering Works; Mr. T. Mitchell, garage, Hanover-street; Messrs. John Howroyd, Ltd., petrol store, off Crawshaw-street, Ravensthorpe.

GRANTHAM.—Grantham T.C. has accepted conditions imposed by the Carnegie United Kingdom Trustees which will provide the town with a public library. A site has already been obtained, and plans for the building are to be immediately drawn up.

JARROW.—By their Bill in Parliament, the South Shields Gas Company proposes to take land at Jarrow on which to erect additional works.

LEICESTER.—The Estates Committee is proposing to the Corporation to purchase 83 acres of land at North Evington for the erection of working-class dwellings.

LEWIS.—At a meeting of the Lewis District Committee, inspectors of the Scottish L.G.B. attended and intimated that the Minister of Pensions was prepared to erect a sanatorium and shelters in Lewis, to be under the management of the Committee for Discharged Soldiers and Sailors suffering from Tubercular Disease.

LEYTON.—Plans passed by U.D.C.:—Alterations 153, Essex-road, for Mr. F. J. Torode; new offices, 519, 521, High-road, Leytonstone, for Mr. W. Beattie.

LIVERPOOL.—It is reported that negotiations are current between the Ecclesiastical Commissioners as vendors and a Liverpool syndicate as proposed purchasers for the sale of St. Peter's Churchyard, Church-street. The scheme which the syndicate is believed to have in view comprises the erection of a flats-mansion, or residential hotel.

NEWCASTLE-UNDER-LYME.—The L.G.B. has given its consent for the borrowing of £800 for the installation of heating apparatus at Rye Croft Council Schools. The town clerk has been instructed to obtain particulars of the prices of two pieces of land for housing sites.

OSWESTRY.—The Oswestry T.C. has received a letter from the Oswestry Trades and Labour Council requesting the Council to erect 300 workmen's dwellings after the war, instead of 100, as they had already decided to do. The letter has been referred to a committee.

PORTSMOUTH. — Plan passed: — Club-room, St. George's-square, Mr. J. Croad, for the churchwardens of St. George's Church.

READING.—Plans passed by T.C.:—Two conservatories at "Oakdene" and "Duart," Holmes-road, for Mr. J. T. Cook; storeroom, 12–14, Bridge-street, for Mr. H. C. Smith; additions, "Selkirk," Woodcote-road, for Mr. T. G. Chivers; sanitary alterations, South-street, for Messrs. H. O. Serpell & Co.; additions to shed, Bridge-street, Caversham, for Messrs. Freebody & Sons; sanitary additions, Trinity-place, for Mr. M. E. Fitt; roof, Kennet Side, for Messrs. W. Kingham & Sons.

ROTHERHAM.—Plans passed:—New forge for Messrs. Hadfields, Ltd.; electric generating station for the Sheffield Corporation.

ST. AUSTELL.—At a recent meeting of the St. Austell U.D.C. it was agreed that Mr. Tremayne be approached to know upon what terms he would sell the land at Trennance, known as Lobb's Orchard, for the erection of working-class houses after the war. The proposal was to put up eight six-roomed houses, ten five-roomed, ten four-roomed, and eight three-roomed, the latter on the bungalow style, making 36 houses on a site a little over three acres in area. Accommodation would be given for about 140 people. The scheme was contingent on a grant being made by the L.G.B. adequate to the outlay involved.

ST. MARYLEBONE.—Drainage plan passed:—For 17–27, Abbey-road, for Mr. W. Beattie, for the Trustees of the Housing Association for Officers' Families.

SALFORD.—Plans passed by T.C.:—Alterations and additions to dwelling house, Duncan-street; addition to premises, Liverpool-street; construction of naphtha house, Gillingate; alterations and additions to works, Athole-street, Pendleton.

SEACOMBE.—Negotiations are proceeding between the Wallasey Corporation and the Mersey Docks and Harbour Board in regard to the proposed extension of the present landing-stage at Seacombe. Other alterations in connection with the Seacombe Ferry premises are likely to be considered, with a view to relieving the present congestion of passenger traffic. These improvements involve the construction of a third covered bridge from the landing-stage to the pierhead and the provision of more turnstiles.

SHEFFIELD.—Plans passed:—Drainage from gas producers at Messrs. Brown Bayley's Steel Works; new rolling mill premises, Weepsend-lane, for Messrs. J. H. Andrew & Co., Ltd.; time office addition, Sheffield-road, for Messrs. Steel, Peech & Tozer, Ltd.; alterations, Allen-street, for Mr. John Truswell; transformer house addition, Bacon-lane, for Messrs. Kent Smith, Ltd.; boundary wall addition, Greenland-road, for Messrs. A. Balfour & Co., Ltd.; shed addition, Rutland-road, for Messrs. Burys & Co., Ltd.; sanitary accommodation, Carlisle-street East, for Messrs. Cammell, Laird & Co., Ltd.; additions, Grimesthorpe-road, for Trustees, Grimesthorpe P.M. Chapel; sanitary alterations, Bramall-lane and Clough-road, for Messrs. J. Richdale & Co., Ltd.; pattern store additions, Carwood-road, for Messrs. J. Brown & Co., Ltd.; additions, Carlisle-street East, for Messrs. Kayser, Ellison & Co., Ltd.; additions, Effingham-street, for Messrs. Hy. Rossell & Co., Ltd.; ¾ steel chimneys, Darnall-road, for Messrs. Kayser, Ellison & Co., Ltd.; clay store, Furnival-road, for Messrs. T. Inman & Co., Ltd.; fitting and grinding shop additions, Penistone-road, for Messrs. Edgar Allen & Co., Ltd.; steam lorry shed addition, Worksop-road, for Messrs. Brown Bayley's Steel Works, Ltd.; ambulance room, Manningham-road, for Messrs. S. H. Burrows & Sons, Ltd.; additions, Tom-lane, for Mr. Wm. Fisher; alterations, Scotland-street, for Mr. C. H. Kitching; workshops additions, Canal-street, for Mr. A. Young; additions, Garden-street, for Messrs. C. Cooper & Son; additions, Holme-lane, for Messrs. W. Marlow & Sons; house and stabling, Adelphi-street, for Mr. W. H. Silvester; alterations, Fulwood-road, for Dr. Godfrey Carter; shed and retaining wall, Great Central-street, for Messrs. Dunford & Elliott, Ltd.; forging shop and steel chimney additions, Sorby-street, for Messrs. Kayser Ellison & Co., Ltd.

SOUTHWARK.—A Bill has been deposited in Parliament for the demolition of the Church of St. Olave and for the allocation of the money derived for the erection of another church. Drainage plans passed by B.C.:—At 265, Borough High street, for Messrs. Jacob Younz & Co.; at 18, Union-road, for Trinity Corporation; at 70, Ambergate-street, for the Junior Army and Navy Stores; at 235, Union-street, for W. H. Surmen. Messrs. Wallis, Gilbert & Partner architects, of 83, Southwark-street, have plans before the L.G.B. for the erection of a reinforced concrete factory for Mr. J. W. B. Sexton at Lavington-street.

STEPNEY.—Drainage plans passed by B.C.: at 87–93, Clinton-road, for Mr. A. Stein; at 19–23, Longfellow-road, for Mr. T. W. Murphy. Applications are before the L.C.C. for the erection of a store at the premises of J. Moir & Son, Ltd., Glasshouse-fields, for Messrs. Hobden & Porri; subway at the premises of Messrs. Batger & Co., Broad-street for Mr. E. J. Gosling; building, 2a, Gill-street, for Mr. E. J. Harrison; extension, Sanitas Co.'s factory, Pixley-street, for Mr. H. L. Barraclough.

STRETFORD.—Plans approved by the U.D.C.:—Summer house, 76, Cromwell-road, for Mr. Herbert Hunt; strong room, Trafford Park-road, for Messrs. W. T. Glover & Co., Ltd.; boiler house and chimney, Choriton-road, for Messrs. G. Steven & Co.; messrooms and kitchen to works, Elsinore-road, for Messrs. H. Hunt & Sons; east boundary wall, &c., to works, Trafford Park-road, for Messrs. Skipworth, Jones & Lomax, Ltd.; extension of smithy, Trafford Park-road, for Messrs. Royce, Ltd.; cart shed, First-avenue, for Mr. Thomas Malden; tea bonding warehouse, Ashburton-road, for the Trafford Park Estates, Ltd.; wool storage warehouse, Ashburton-road, for the Trafford Park Estates, Ltd.

WALSALL.—Four new beds of retorts are to be constructed at the Corporation Gas Works at an estimated cost of £2,600. Plans passed by T.C.:—Mr. T. W. Hale, motor-house, Hatherton-street; Messrs. J. Birch & Sons, Ltd., extension of factory, Lower Brook-street; Walsall Munitions, Ltd., machine shop, Pleck-road; Mr. A. G. Heydon, shop front, 238, Green-lane; Messrs. J. Cleland & Sons, workshop, Adams-row; Messrs. Hawley, Mills & Co., petrol store, Charles-street; Messrs. Nicholson & Lord, factory, Off Bloxwich-road, Leamore.

WALTHAMSTOW.—Plans passed by U.D.C.:—Lavatories, Higham Hill-road, for Mr. P. A. Attwell; lavatories, Blackhorse-lane, for Gnome & Le Rhone Engine Co., Ltd.; factory addition, Blackhorse-lane, for J. R. Davies; office, Blackhorse-road for A. H. Herbert & Co.; factory, Clifford-road, for Houghton-Butcher Manufacturing Co., Ltd.; covering 185, High-street, for C. Bannister; store, 565, Forest-road, for T. Roberts; store, 27, Claremont-road, for Mr. A. Ercoloni; stable, 18, Winchester-road, for Mr. E. S. Girdler; shelter, 10, Shrubland-road, for Mr. A. L. Evans; store, Vintry Works, High-street, for Gillard & Co., Ltd.; workshop, 23, St. Mary's-road, for Mr. H. D. Black; factory addition, Longfellow-road, for J. Spicer & Sons, Ltd.; store, Blackhorse-lane, Bray, for Markham & Reiss, Ltd.

WANDSWORTH.—Works approved by the B.C.: Re-drainage of 17, Malbrook-road, Putney, for Mr. A. S. Cadley; sanitary accommodation at factory premises, Totterdown-street, Tooting, for Mr. J. Jones; erection of additional sanitary accommodation at 106A, Upper Tooting-road, Balham, for Mr. A. R. Stowers.

WATH-UPON-DEARNE.—A joint housing conference of the U.D.C. of Bolton-on-Dearne, Darfield, Rawmarsh, Swinton, Wombwell, and Wath-upon-Dearne, and the R.D.C. of Rotherham, was held recently, when the following decision was arrived at:—To meet the urgent need for further housing accommodation it is estimated that the number of houses required in each of the districts is as follows:—Bolton, 801; Darfield, 200; Mexborough, 200; Swinton, 200; Thurnscoe, 200; Wath, 500; Wombwell, 700. With regard to Bolton, a scheme for 301 houses has already been passed.

WEST HAM.—Plans passed by B.C.: Loft, 2, Clegg-street, Plaistow, for Mr. E. Beech; sanitary accommodation, Moreland & Sons' premises, Bradfield-road, Silvertown, for Messrs. D. Bennett & Co.; factory, The Green, Stratford, for Mr. J. R. Moore-Smith; offices and cottages, Crescent Wharf, Silvertown, for Messrs. Robins, Davies & Little; new shop fronts, 135–137, Leytonstone-road, Stratford, for Mr. A. Webb; alterations to entrance, Canning Town Cinema, 317, Barking-road, Plaistow, for Mr. H. Brickell; raising roof of store, Manhattan Wharf, Bradfield-road, Silvertown, for Mr. G. N. Kent; open shed, Senior, Crozier & Co.'s premises, Union-street, Stratford, for Mr. R. C. Turner Gordon; bone shed, Excel Company's premises, Carpenters-road, Stratford, for Mr. W. Knight; sanitary accommodation, Whitefield's, Ltd., premises, Tunmarsh-lane, Plaistow, for Mr. R. C. Turner Gordon; rebuilding shed, Jupp-road, Stratford, for the "Zeta" Wood Flooring Co.; dining hall and sanitary accommodation, Turner & Sons' premises, Bradfield-road, Silvertown, for Mr. G. F. Turner; water closets, Confectionery works, Drivers-avenue, Plaistow, for Mr. R. Banks-Martin; addition to factory, Densham-road, West Ham, for Mr. R. C. T. Gordon; additional sanitary accommodation, 391, High-street, Stratford, for Mr. A. Webb; extension of covered way, Warton-road, Stratford, for Messrs. Palmer & Co.; iron store, Lion Wharf, 26, High-street, Stratford, for Mr. R. C. T. Gordon.

THE LONDON COUNTY COUNCIL.

THE fortnightly meeting of the London County Council was held on Tuesday in the County Hall, Spring Gardens, S.W., the Marquis of Crewe, Chairman, presiding.

Works in respect of which application is to be made to Parliament.—A report was received from the Clerk of the Council, submitting plans deposited with the Council by the Wandsworth, Wimbledon and Epsom District Gas Co., pursuant to the standing orders of Parliament, for works in respect of which application is to be made to Parliament in the ensuing session.

Loans.—Sanction was given to the borrowing by the Battersea Borough Council of £37,555 for electricity purposes, and by the Woolwich Borough Council of £1,000 for steam wagon and shed.

Regulations relating to the Construction of Places of Public Entertainment.—On the recommendation of the Theatres and Music Halls Committee it was agreed that Paragraph 4 of No. 15 of the regulations made by the Council under Section 12 of the Metropolis Management and Building Acts Amendment Act, 1878, be amended by omitting the words "by automatic bolts only of a pattern and in a position to be approved by the Council," and substituting therefor the words "in such a manner that the doors will open immediately on being pressed in the direction of exit."

Westminster Improvement.—The Improvements Committee reported that the Council, on July 30, 1912 and November 25, 1913, agreed to sell to the Crown Agents for the Colonies its freehold interest in sites in Millbank and Wood-street. The Crown Agents are desirous of completing the design for the Wood-street frontage of their buildings, and as a result of negotiations they have offered £19,765 for a plot of land having an area of about 6,325 sq. ft. and a frontage of 45 ft. to Wood-street. Under the Council's existing powers the land in question will have to be sold in or before 1960. On the Committee's recommendation, the Council decided to accept the Crown Agents' offer.

* See also our list of Competitions, Contracts, &c., on p. 353.

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several revisions have been made.—Ed.]

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1,000 Alongside, in River Thames.	£ s. d.
Best Stocks	2 10 0
Picked Stocks for Facings	3 5 0

Per 1000, Delivered at Railway Depot, London.

	£ s. d.		£ s. d.
Flettons	2 3 0	Best Blue Pressed Staffordshire	6 5 0
Best Fareham Red	4 0 0	Do. Bullnose	6 10 0
Best Red Pressed Ruabon Facing	6 0 0	Best Stourbridge Fire bricks	9 5 0
GLAZED BRICKS—			
Best White, Ivory, and Salt Glazed Stretchers	14 17 6	D'ble Str'tch'rs	20 7 6
Headers	14 7 6	D'ble Headers	17 7 6
Quoins, Bullnose and 4½in. Flats	18 7 6	One Side and two Ends	21 7 6
		Two Sides and one End	22 17 6
		Splays and Squints	19 17 6

Glazed bricks priced at so much each, 25 per cent. advance on list.

Second Quality, £1 per 1,000 less than best.

	s. d.	
Thames Ballast	8 9	per yard, delivered.
Pit Sand	11 0	
Thames Sand	12 0	" " "
Best Washed Sand	12 0	" " "
¼ in. Shingle for Ferro-Concrete	11 6	" " "

Per ton, delivered.

	£ s. d.		£ s. d.
Best Portland Cement	2 15 0	..	2 18 0

Do. £2 11s. 0d. alongside in 80-ton lots.
Ferrocrete 2s. 6d. per ton extra on above.
Best Ground Blue Lias Lime 1 7 6 at rly. depot.
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 3d. each and credited at 2s. each if returned in good condition within three months.
Grey Stone Lime ..... 47s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	1 7
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	1 8½
Do. do. delivered on road waggons at Nine Elms Depot	1 9½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park, G.W.R., South Lambeth, G.W.R., or Nine Elms, or L. & S.W.R., per ft. cube	2 5½
Do. do. delivered on road waggons at Pimlico Wharf or Nine Elms Depot, per ft. cube	2 6½
White basebed, 2d. per ft. cube extra.	

RANDOM BLOCKS—Per Ft. Cube, delivered at Rly. Dpot.	s. d.		s. d.
Ancaster in blocks	2 0	Closeburn Red Freestone	2 2
Beer in blocks	1 7½		
Grinshill in blocks	2 4	Red & White Mansfield random block	2 9
Darley Dale in blocks	2 5	Yellow Magnesian Limestone do. do	3 3

YORK STONE—*Robin Hood Quality.*

Delivered at any Goods Station London.	s. d.
Scappled random blocks ..... Per Ft. Cube	3 11
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	3 0
6 in. rubbed two sides, ditto ..... "	3 4
3 in. sawn two sides slabs (random sizes) "	1 3½
2 in. to 2½ in. sawn one side slabs (random sizes) "	0 10
1½ in. to 2 in. ditto, ditto "	0 8½

HARD YORK—

Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	3 6
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	2 8
6 in. rubbed two sides ditto ..... "	2 4
3 in. sawn two sides slabs (random sizes) "	1 3
2 in. self-faced random flags ..... "	0 5½

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles or hand-made sand-faced tiles from either Broseley or Staffordshire district	3 0 0
Ornamental ditto	3 2 6
Hip and valley tiles (per dozen)	0 6 0

SLATES.

		Per 1,000 of 1,200 f.o.r. London. £ s. d.
Best Blue Bangor Slates,	20 by 10	13 5 0
	16 by 8	6 12 6
First quality "	20 by 10	12 15 0
" "	16 by 8	6 10 0
Best Blue Portmadoc	20 by 10	13 5 0
" "	16 by 8	6 12 6
First quality "	20 by 10	12 12 6
" "	16 by 8	6 7 6

WOOD.

BEST BUILDING REDWOOD. Imported sizes.
Deals: 4 in. by 12 in., 4 in. by 11 in., 3 in. by 11 in., 4 in. by 9 in., and 2 in. by 11 in.
3 in. by 9 in., 2½ in. by 9 in., and 2 in. by 9 in.

Softwood stocks controlled by the Director of Materials, consequently prices must be withdrawn

WOOD (*Continued*).

BEST BUILDING REDWOOD.
Battens: 2 in., 2½ in., and 3 in. by 8 in.
2 in., 2½ in., and 3 in. by 7 in.
2 in., 2½ in., and 3 in. by 6 in.
Scantlings: 2 in. by 3 in., 2 in. by 3½ in., 2 in. by 4 in., 2 in. by 4½ in., 3 in. by 4 in., and 3 in. by 4½ in.
Boards: 1 in., 1¼ in., and 1½ in. by 6 in. and 7 in.
¾ in.
Seconds
Sawn pitch pine logs (about 35 cu. ft. average
Do. 6 in. to 10 in.

Best Pitch Pine Deals
Under 2 in. thick

JOINERS' WOOD

White Sea First Quality Red: 4 in. by 11 in.
3 in. by 11 in., and 2 in. by 11 in.
4 in. by 9 in.
3 in. by 9 in., and 2½ in. by 9 in.
3 in. by 11 in. boards
7 in. and 8 in. battens
7 in. and 8 in. boards

Archangel White Deals—
Best 3 in. by 9 in. and 10 in. and 11 in.
Seconds, do.
U.S. Battens

Prepared Floorings and Matchings. Seconds Swedish Red and equal—
1¼ in. by 6½ in. planed and shot
1¼ in. by 6½ in. planed and matched
1 in. by 6½ in. planed and shot
1 in. by 6½ in. planed and matched
⅞ in. by 6½ in. planed, matched, and beaded, or V jointed
1 in. by 6½ in. do.

Columbian or Oregon Pine, best quality
Yellow Pine—First regular sizes
Oddments
Seconds, regular sizes
Oddments
Kauri Pine—Planks per ft. cube

Softwood stocks controlled by the Director of Materials, consequently prices must be withdrawn.

Dry Wainscot Oak, per ft. super, as inch	0 1 6	..	0 2 0		
⅞ in. do. do.	0 1 3	..	0 1 6		
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 2 0	..	0 3 0		
Cuba, Mahogany	0 2 6	..	0 3 6		
Dry Walnut, American, per ft. super, as inch	0 2 0	..	0 3 0		
French, "Italian," Walnut	0 3 0	..	0 5 0		
Teak, per load Rangoon or Moulmein	45 0 0		60 0 0		
Do. do. (Java)					
American Whitewood planks, per ft. cube	0 18 0	..	1 1 0		
Glue, per cwt.	5 15 0	..	6 0 0		

METALS.

JOISTS, GIRDERS, &c.

Rolled Steel Joists, ordinary sections, basis price
Plain Compound Girders, ordinary sections
Plain Compound Stanchions
Angles, Tees, and Channels, ordinary sections
Flitch Plates
Cast Iron Columns and Stanchions, plain ordinary patterns

Prices controlled by the Ministry of Munitions.

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £4 net value delivered direct from works. 5 per cent. less carriage forward if sent from London stocks.)

	Tubes.	Fittings.
Gas	42½	47½
Water	37½	45
Steam	32½	42½
Galvanised gas	25	40
" water	16	37½
" steam	10	35

L.C.C. SOIL PIPE—

	Pipes Coated. s. d.		London Prices. Bends. s. d.		Branches. s. d.
2 in. per yd.	2 10	....	2 3	each	2 8
2½ in. " ..	3 3	....	2 6	"	3 4
3 in. " ..	4 0	....	2 8	"	4 0
3½ in. " ..	4 5	....	3 4	"	4 7
4 in. " ..	4 10	....	3 9	"	5 3

RAIN-WATER PIPES, &c.

	Pipe. s. d.		London Prices. Bends. s. d.		Branches. s. d.
2 in. per yd.	2 1	....	1 3	each	1 6
2½ in. " ..	2 3	....	1 6	"	2 1
3 in. " ..	2 7	....	1 9	"	2 8
3½ in. " ..	3 2	....	2 2	"	3 2
4 in. " ..	3 4	....	2 7	"	3 10

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 5s. 5d. .. 5 in., 6s. 9d. .. 6 in., 7s. 11d.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	16 10 0	to	17 0 0
Staffordshire Crown Bars—good merchant quality	16 10 0	..	17 10 0
Staffordshire "Marked Bars"	17 10 0	..	18 0 0
Mild Steel Bars	19 0 0	..	19 10 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Steel Bars, Ferro-Concrete quality, £19 basis price.			
Hoop Iron, basis price	20 10 0	..	21 0 0
" Galvanised	33 0 0	..	—
(* And upwards, according to size and gauge.)			
Sheet Iron Black—			
Ordinary sizes to 20 g.	22 10 0	..	23 0 0
" " 24 g.	23 10 0	..	24 0 0
" " 26 g.	24 10 0	..	25 0 0
Sheet Iron, Galvanised flat, ordinary quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	34 0 0	..	—
Ordinary sizes to 22 g. and 24 g.	34 0 0	..	34 10 0
Ordinary sizes to 26 g.	36 0 0	..	36 10 0
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	35 10 0	..	—
" " 22 g. and 24 g.	36 0 0	..	—
Ordinary sizes to 26 g.	39 0 0	..	—
Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.	33 0 0	..	—
Ordinary sizes, 22 g. and 24 g.	33 10 0	..	—
Ordinary sizes, 26 g.	32 10 0	..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	24 10 0	..	—
Best Soft Steel Sheets, 20 g. and 24 g.	24 15 0	..	—
Best Soft Steel Sheets, 26 g.	26 10 0	..	—
Cut Nails, 3 in. to 6 in.	28 0 0	..	29 0 0

(Under 3 in., usual trade extras.)

LEAD, &c.

Delivered in London.	£ s. d.		
LEAD—Sheet, English, 4 lb. and up	38 10 0	..	—
Pipe in coils	39 0 0	..	—
Soil Pipe	42 0 0	..	—
Compo pipe	42 0 0	..	—

NOTE—Country delivery, 20s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra. Orders for over 1 cwt. Sheet Lead or Pipe, or 28 lbs. Solder should be accompanied by a certificate or licence, which can be obtained from the Director of Materials [A.N.2 (E)], Hotel Victoria, S.W. Smaller quantities than the above can be obtained by making a written declaration to the Manufacturer or Merchant that the metal is wanted for urgent renewals or repairs, and giving the name of the job for which it is required.

COPPER—					
Strong Sheet ...	per lb.	0 2 2	..	—	
Thin "	"	0 2 3	..	—	
Copper nails	"	0 2 2	..	—	
Copper wire	"	0 2 3	..	—	
TIN—English Ingots	"	0 2 11	..	—	
SOLDER—Plumbers'	"	0 1 4	..	—	
Tinmen's	"	0 1 9	..	—	
Blowpipe	"	0 1 11	..	—	

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

Per Ft.		Per Ft.	
15 oz. fourths	6d.	32 oz. fourths	9d.
" thirds	6½d.	" thirds	10d.
21 " fourths	7d.	Fluted, Obscured and Enamelled Sheet,	
" thirds	7½d.	15 oz.	7½d.
26 " fourths	8d.	21 "	8½d.
" thirds	9d.		

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
Rolled plate	4½d.
Rough rolled and rough cast plate	5½d.
Rough rolled and rough cast plate	5½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6d.
Ditto, tinted	7d.
Rolled Sheet	5d.
White Rolled Cathedral	5d.
Tinted do.	5½d.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil in pipes ..... per gallon	0 5 6
" " " in barrels .... "	0 5 7
" " " in drums .... "	0 5 10
Boiled " " in barrels .... "	0 5 10
" " " in drums .... "	0 6 1
Turpentine in barrels ..... "	0 9 9
" in drums ..... "	0 10 0
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	53 10 0

GENUINE WHITE LEAD PAINT—
"Blackfriars," "Nine Elms," "Park," and other best brands (in 14 lb. tins) not less than 5 cwt. lots..per ton delivered 71 10 0
Red Lead, Dry (packages extra) .. per ton 42 0 0
Orders for White and Red Lead and any Paint containing Lead must be accompanied by a certificate or licence, which can be obtained from the Director of Materials [A.N. 2 (E.)], Hotel Victoria, S.W.

Best Linseed Oil Putty ..... per cwt.	0 15 6
Filocol ..... per cwt.	0 13 6

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak	0 10 0
Pale Copal Oak	0 12 0
Superfine Pale Elastic Oak	0 14 0
Fine Extra Hard Church Oak	0 12 6
Superfine Hard-drying Oak, for seats of Churches	0 16 0
Fine Elastic Carriage	0 14 6
Superfine Pale Elastic Carriage	0 18 0
Fine Pale Maple	0 12 0
Finest Pale Durable Copal	1 0 0
Extra Pale French Oil	1 1 0
Eggshell Flatting	1 0 0
White Pale Enamel	1 6 0
Extra Pale Paper	0 14 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 10 0
Knotting	1 7 6
French and Brush Polish	0 16 0

TENDERS.

* Denotes *accepted*. † Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.

LEYTON.—For (*a*) erection of two external iron staircases at Newport-road School, and (*b*) for builders' work in connection with staircases, for the Leyton U.D.C. :—

STAIRCASES.

General Iron Foundry Co., Ltd., Brooks Wharf, Upper Thames-street, E.C.	£503 0
Haward, C. A. & A. W., 31, Gifford-street, N. 1	597 15
Haywards, Ltd., 187, Union-street	449 0
*Norris, F. A. & Co., 11 and 12, St. Andrew's-hill, Queen Victoria-street, E.C.	410 13
Safety Tread Syndicate, Ltd., Dace-road, Old Ford, E.	433 10
Wilmer & Sons, High-street, Stratford	450 0

BUILDER'S WORK.

Coxhead, F. J., 45, Bulwer-road, Leytonstone	£171 0
Clark, A. E., 117, Grange-park-road, Leyton	140 0
Horswill, H. C., 182, Green-street, Forest Gate	95 0
*Russell, E. A., 66, Cavendish-drive, Leytonstone	89 0
Wilson, H., 278, High-road, Leyton	134 0

LONDON.—For stripping and washing rooms after cases of infectious disease for the Camberwell Borough Council :—

*W. F. Mortimore .. 8s. 6d. per room for stripping and 4s. for washing.

LONDON.—Supply of timber for grave boards for the cemetery, for the Islington Borough Council :—

*A. Stevens, Gossett-street, Bethnal Green £73 6

SHEFFIELD.—For alterations to hot-water apparatus at King Edward VII Hospital, for the Corporation :—

*Brightside Foundry and Engineering Co. and T. Roper & Sons (builder's work) £300

SWANSEA.—For the extension of plant at the electricity station, for the Swansea Electricity Committee :—

‡British Thomson Houston Co. .. £25,516

WINDSOR.—For erecting a wall at the Council's yard at Clewer, for the Windsor R.D.C. ; Mr. W. Menzies, F.S.I. :—

*William Green, Clewer, Windsor .. £60

The British Fire Prevention Committee.

The British Fire Prevention Committee has issued a reminder of the danger of fires at holiday entertainments in hospitals, camps, billets, and private assemblies. Ten thousand copies will be distributed throughout the country, and copies may be obtained from the committee, 8, Waterloo-place, London, S.W. 1.

PATENTS.

APPLICATIONS PUBLISHED.*

110,949.—Messrs. Thomas Piggott & Co. Ltd., and Frederick Mills Barnby : Bending of flanged plates for circular tanks.

110,963.—The J. G. Brill Co. and William Henry Heulings, Jun. : Window casings or sash frames.

110,965.—Messrs. Turner Brothers Asbestos, Ltd., Samuel Turner and John Cunninghame Hannah : Affixing and securing roofing tiles in position.

110,980.—Messrs. Deighton's Patent Flue and Tube Co. and Walter Jonathan Lewin : Means for re-charging street gulleys and other receptacles with water or disinfecting fluid.

Cottage Homes of the Future.

The parlour is doomed in the cottage houses of the future—that is, if a discussion at a meeting of the Manchester Society of Architects is any guide. The parlour has been the least used room of the house—a weekly resort, to which one could retreat only when rigged up in one's Sunday best. The parlour's passing is to begin in real, business-like fashion when the boys come home, when building operations on an unprecedented scale are anticipated. The living-room and the scullery, from what was said by several architects, are likely then to be given new prominence. Mr. F. B. Dunkerley, who opened the discussion, advocated that the scullery should be as large as possible, seeing that so much work was to be done there. In the living-room—where three and even four doors were often found—there ought to be no more than two doors, and those should be placed as far as possible from the fire. He thought the management of house property by women was to be commended, and said that the present system carried on by ordinary agents was a very bad one. Some of them were too much like machines and lacked human sympathy.—*Evening Standard.*

* All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

TRADE NEWS.

We learn that the already enhanced value of genuine Varnish may be further increased in view of the great rise in the price of turpentine—which, on to-day's market, fetched as much as 9s. 4d. per gallon. The present list prices of George Farmiloe & Sons, Ltd., of 34, St. John Street, West Smithfield, E.C., will range from 12s. to 15s. for oak (in and out) ; 14s. to 16s. for hard drying oak, for seats of churches and best interior work ; white carriage, at 15s. to 18s., and front door copal, at 18s. to 20s. per gallon, about complete the range. Prices subject to a trade rebate for quantities.

Boyle's latest patent "air-pump" ventilators, supplied by Messrs. Robert Boyle & Son, Ventilating Engineers, 64, Holborn-viaduct, London, have been employed at the Royal Victoria Hospital, Netley.

Messrs. Robt. Ingham, Clark & Co., Ltd., varnish and enamel manufacturers, inform us that in consequence of the Army Council having commandeered their offices at Caxton House, Westminster, their registered address is now :—Walter House, Bedford-street, Strand, W.C. 2. Telegraphic address : Pearline, Westrand, London. Telephone No. : Regent 3923.

Asphalte.—The Seyssel and Metallic Lava Asphalte Co. (Mr. G. F. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp-courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to Forth Bridge Co. T.N. Central 2644.

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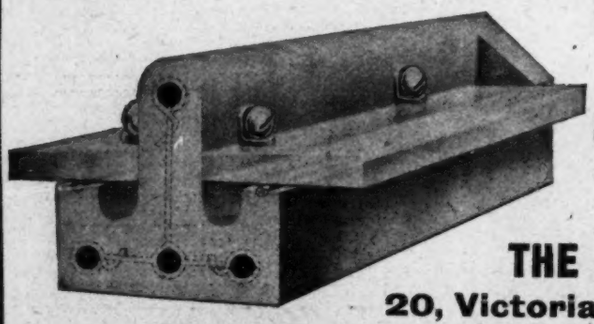

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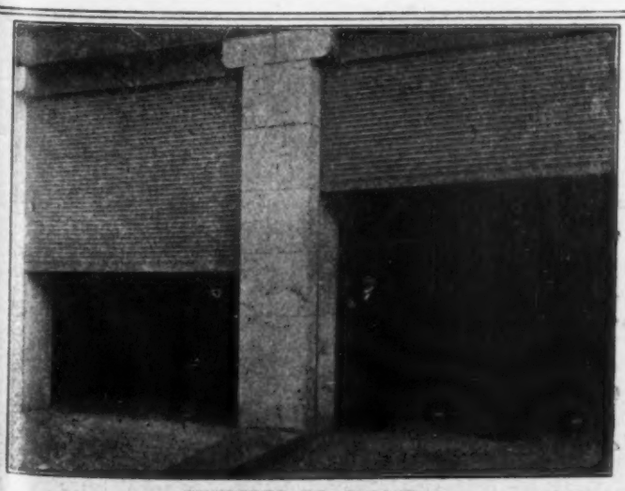

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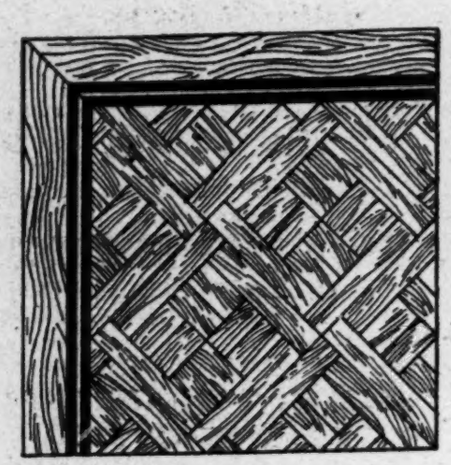

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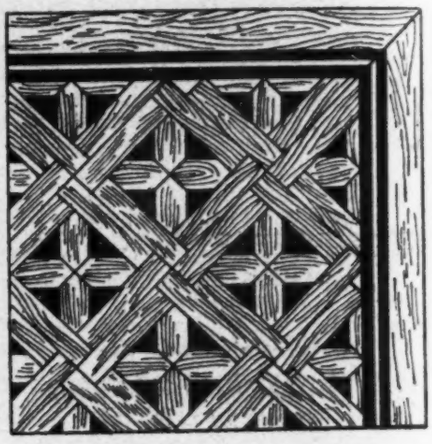

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